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London's growing pains

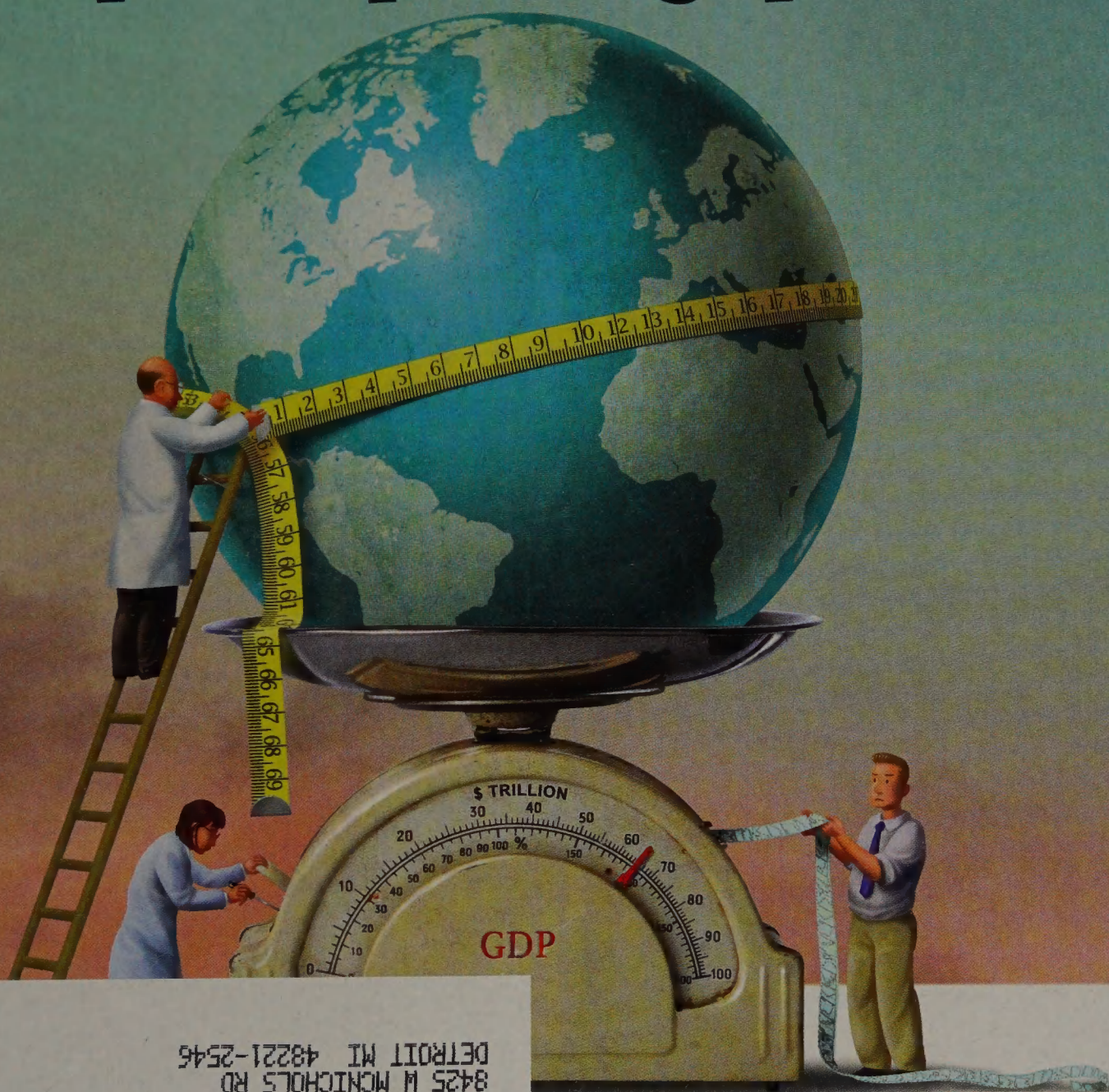
The rich world's baby bust

Five more bricks in Trump's wall

Germany's rift with the ECB

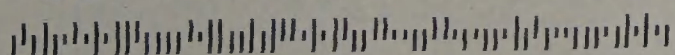
The vanities of billionaires

The prosperity puzzle



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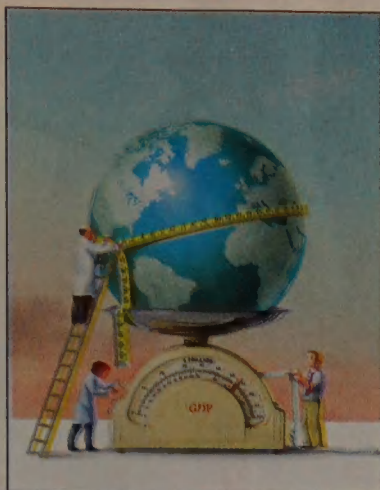
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On the cover

Gross domestic product is a bad gauge of material well-being. Time for a fresh approach: leader, page 7. The many ways in which GDP falls short, pages 21-24. How to read between the lines of companies' accounts: leader, page 10

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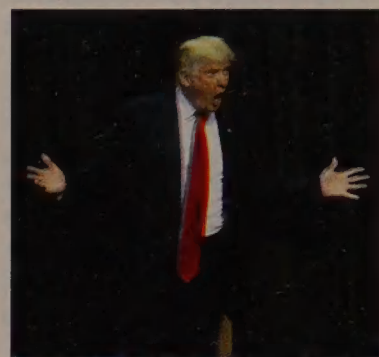
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Tel: +41 22 566 2470

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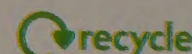
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Politics



Donald Trump won all five **primaries** this week, taking over 50% of the vote in all of them. The victories extended his lead in the Republican presidential-nomination race. If he wins by those margins in the remaining contests he should secure enough delegates to avoid a contested convention. On the Democratic side Hillary Clinton won four of the five states on offer, putting her within touching distance of the delegates she needs to clinch her party's nomination.

Mr Trump's closest rival, **Ted Cruz**, chose Carly Fiorina to be his vice-president should he win the White House. Mr Cruz may hope that his selection of Ms Fiorina, a former chief executive in Silicon Valley, will win him some votes in California's primary on June 7th.

Dennis Hastert, the Speaker of the House of Representatives from 1999 to 2007, was sentenced to 15 months in prison for trying to pay off a victim he sexually abused when he was a schoolteacher.

Mad at Maduro

Venezuela's populist president, Nicolás Maduro, told civil servants to work a two-day week to save electricity. The country's political crisis worsened when the supreme court blocked a proposed amendment to the constitution that would force an early election. But the opposition claimed a small victory when the electoral commission issued the petition forms needed to launch a referendum to recall Mr Maduro.

An international commission investigating the disappearance of 43 student teachers in **Mexico** in 2014 said there was little evidence to support the government's claim that their bodies had been burned after they were kidnapped and murdered by local police acting in league with a drug gang. It said that suspects appear to have been tortured and that the government had barred investigators from talking to the army.

Mexico's president, Enrique Peña Nieto, proposed legalising medical **cannabis** and increasing the amount people can keep for personal use without penalty from five grams to 28. He had once opposed liberalisation.

It changed football



The families of 96 Liverpool football fans crushed to death at Sheffield's **Hillsborough** stadium in April 1989 said they had at last secured justice when an inquest jury found that the victims were unlawfully killed. Mistakes made by the police and ambulance service "caused or contributed" to the tragedy. The ruling exonerated Liverpool's supporters from any blame, reversing the findings from an official inquiry in 1990-91. The jury was shown footage of a similar incident in 1981 at the stadium that had caused serious injuries but no deaths.

Junior doctors in **England** went on strike again in their prolonged dispute with the government over new contracts covering weekend work. The walkout was the fifth this year but the first in which support was not provided for emergency care.

Aleksandar Vucic, the prime minister of **Serbia**, won another term in elections. He is likely to continue many of the reforms needed for Serbia to join the EU. But the bigger challenge is the economy, which last year grew by only 0.7%.

In **Spain** King Felipe announced that, after exhaustive talks following the country's inconclusive election in December, he had not been able to find a new prime minister. Instead it is likely that new elections will be held on June 26th. The polls indicate that the result may be the same.

The government of **Norway** launched an appeal against a court ruling that it had violated the human rights of Anders Breivik, a far-right extremist who killed 77 people in 2011. Mr Breivik lives in a three-room cell with windows, a treadmill and a television.

Silencing liberal voices

A leading gay-rights activist in **Bangladesh** was hacked to death along with a friend. The prime minister blamed the killings on the opposition, but the local branch of al-Qaeda claimed responsibility. Two days earlier, Islamic State said it was behind a similar murder, of a professor of English. Four Bangladeshi liberals have now been murdered by Islamists this month.

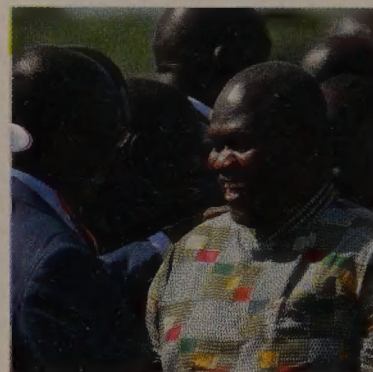
India made an embarrassing diplomatic U-turn when it reneged on issuing a visa to Dolkun Isa, a peaceful Uighur activist whom China regards as a terrorist. The Indians had seemed ready to welcome Mr Isa in a tit-for-tat measure: they were angry that China was reluctant to apply the terrorist label to a man they blame for actual terror attacks in India.

North Korea declared the launch of a ballistic missile from a submarine off its coast to be a "great success". The rogue state's foreign minister said it would suspend its programme of nuclear tests if America ceased its joint military exercises with South Korea. Barack Obama refused.

Papua New Guinea's Supreme Court ruled that **Australia's** controversial detention camp for migrants on its Manus Island was illegal. The judges said the privately run camp, which houses around 850 men, breached PNG's constitutional guarantee of personal liberty. Australia said there would be no change in its policy.

Oil's not well

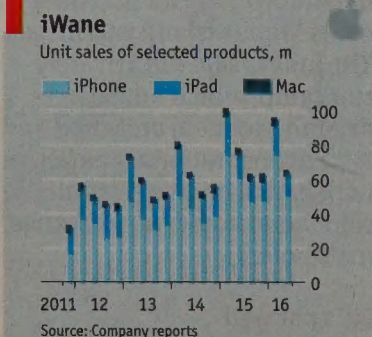
Saudi Arabia's deputy crown prince published what he called a "vision" for the kingdom in 2030. The plan aims to curb dependence on oil by boosting non-oil businesses, and to part-privatise Saudi Aramco in order to set up a huge sovereign-wealth fund that will invest at home and abroad. Prince Muhammad bin Salman also wants to raise the participation rate of women in the workplace from a paltry 22% now to a still-paltry 30% by 2030.



Hopes were tentatively raised that a durable peace might break out in **South Sudan** when the fledgling country's chief rebel, Riek Machar, returned to Juba, the capital, after more than two years away. Standing next to the president, Salva Kiir, with whom he has been in bitter dispute, he was sworn in as vice-president. A unity government was supposed to take shape within days.

In a rare conviction for corruption, a former member of a **Nigerian** state legislature was sentenced to 154 years in jail. But the judge ruled that he should serve his sentences concurrently for 77 crimes, including the embezzlement of around \$7m, so he should be free in two years.

Business



Apple reported its first fall in like-for-like sales for the iPhone, as unit sales of the device declined by 16% in the three months ending March 26th compared with the same period last year. Slipping demand in China and the rest of Asia meant sales dropped by almost a fifth in the region, which accounts for 40% of the company's worldwide sales. Overall revenues fell by 13% in the quarter, the first such drop since 2003, and net profit was down by a fifth, to \$10.5 billion.

Not much to chirp about

Investors were once again left disappointed by **Twitter's** quarterly earnings. Although the growth in users who access the social-media site at least once a month rose by more than expected, to 310m, it posted another net loss, of \$80m, and forecast much lower revenues for the second quarter than analysts had been expecting.

Facebook bucked the trend of weak quarterly earnings from tech companies when it reported a 52% jump in revenues, to \$5.4 billion, based on the strength of its advertising business on mobile phones. The company also proposed creating a new class of non-voting shares that would allow Mark Zuckerberg to retain long-term control of the company.

The **Bank of Japan** decided not to adjust its policy at its latest meeting, surprising markets which had anticipated another round of stimulus measures in light of reduced forecasts for growth in Japan and the strength of the yen.

The currency rose sharply after the decision. At its meeting the **Federal Reserve** kept its options open about raising interest rates in June, making references to international risks to the US economy without signalling an imminent rate rise.

A court in Munich acquitted **Jürgen Fitschen**, one of Deutsche Bank's co-chief executives, on charges of lying under oath in a case related to the collapse of the media empire run by Leo Kirch (who died in 2011). Four other bankers who used to work at Deutsche, including Josef Ackermann, a former chief executive, were also cleared. Mr Fitschen is leaving his job next month when John Cryan takes over as the bank's sole CEO.

Suits booted

Two British high-street clothing retailers, **Austin Reed** and **BHS**, went into administration. BHS is saddled with £571m (\$830m) in pension liabilities, a harbinger of wider issues about underfunded pension schemes at British companies. Its overall debt is £1.3 billion. Around 11,000 workers could lose their jobs. Austin Reed called time after 116 years in business, putting around 1,000 jobs at risk.

BP reported a net loss of \$583m for the first quarter. The oil giant was hit with another charge, of almost \$1 billion, related to the oil spill in the Gulf of Mexico in 2010. It reached an agreement with the federal and state governments last year but the latest settlement is with some local businesses and residents. BP's cumulative costs associated with the disaster have climbed to almost \$56.5 billion.

Standard & Poor's downgraded **Exxon Mobil's** credit rating by one notch, the first time the company has not held a triple-A rating since the 1940s. With oil prices averaging \$34 a barrel in the first three months of the year, other oil companies have also had their ratings cut in the expectation that they will have to rely less on earnings and more on raising debt to fund their activities.

Uber agreed to pay \$100m to settle a dispute with its drivers in California and Massachusetts. The settlements mean that Uber's drivers will still be classified as freelancers. The cases were scheduled to go before a jury to determine if the drivers were employees of the app-based taxi firm, which could have imperilled Uber's business model.

Volkswagen increased its estimate of the costs it will incur from the emissions-cheating scandal to €16.2 billion (\$18.3 billion). The German carmaker booked the charge in its delayed annual earnings, which pushed it to a €5.5 billion net loss for 2015. It has also postponed making public the findings of an internal investigation until it finalises a deal with US regulators.

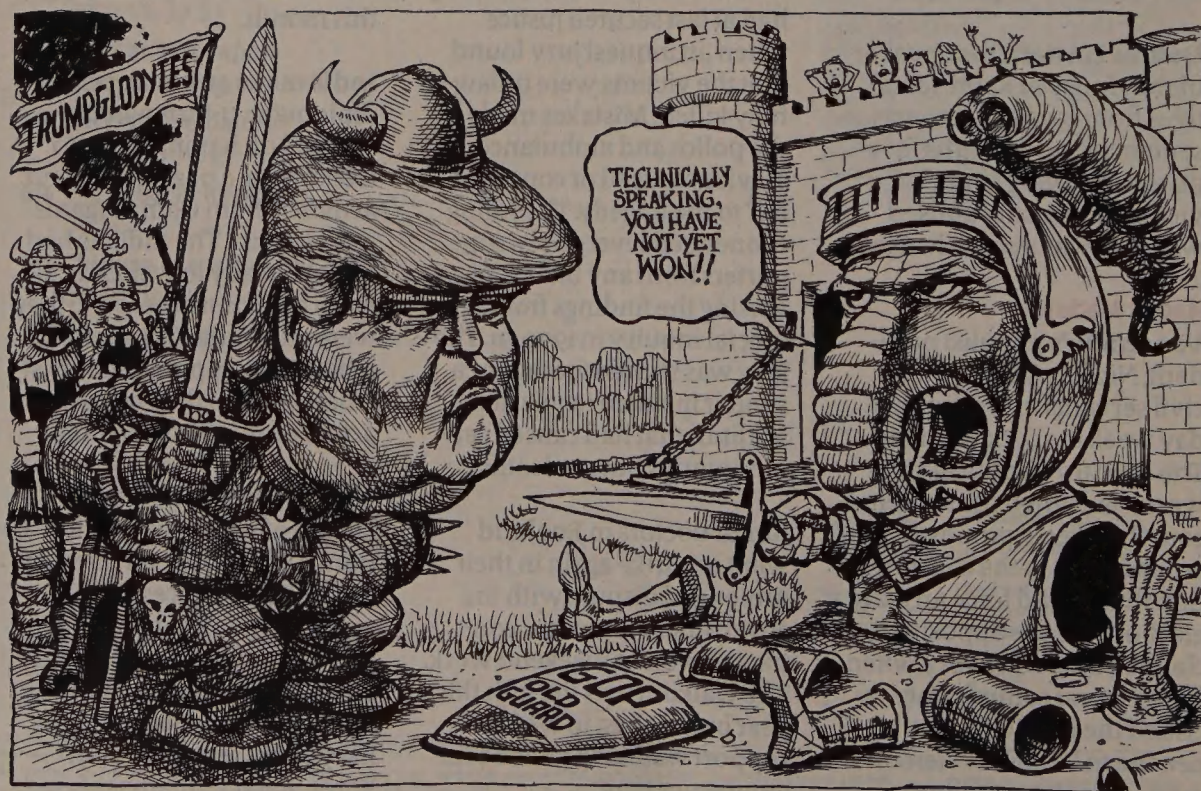
Meanwhile Mitsubishi

Motors, Japan's sixth-largest carmaker, said that orders have halved since its recent admission that employees had falsified fuel-economy tests on some vehicles, a practice which the company now says started as long ago as 1991. Adding to the list of potential wrongdoing in the car industry, **Daimler** said the US Justice Department had asked it to start an inquiry into its testing of car emissions.

Red planet

SpaceX announced that it was teaming up with NASA to send an unmanned spacecraft to **Mars** as soon as 2018. NASA is providing "technical support" to the space exploration firm founded by Elon Musk.

Other economic data and news can be found on pages 80-81



How to measure prosperity

GDP is a bad gauge of material well-being. Time for a fresh approach



WHICH would you prefer to be: a medieval monarch or a modern office-worker? The king has armies of servants. He wears the finest silks and eats the richest foods. But he is also a martyr to toothache. He is prone to fatal infections. It takes him a

week by carriage to travel between palaces. And he is tired of listening to the same jesters. Life as a 21st-century office drone looks more appealing once you think about modern dentistry, antibiotics, air travel, smartphones and YouTube.

The question is more than just a parlour game. It shows how tricky it is to compare living standards over time. Yet such comparisons are not just routinely made, but rely heavily on a single metric: gross domestic product (GDP). This one number has become shorthand for material well-being, even though it is a deeply flawed gauge of prosperity, and getting worse all the time (see pages 21-24). That may in turn be distorting levels of anxiety in the rich world about everything from stagnant incomes to disappointing productivity growth.

Faulty speedometer

Defenders of GDP say that the statistic is not designed to do what is now asked of it. A creature of the 1930s slump and the exigencies of war in the 1940s, its original purpose was to measure the economy's capacity to produce. Since then, GDP has become a lodestar for policies to set taxes, fix unemployment and manage inflation.

Yet it is often wildly inaccurate: Nigeria's GDP was bumped up by 89% in 2014, after number-crunchers adjusted their methods. Guesswork prevails: the size of the paid-sex market in Britain is assumed to expand in line with the male population; charges at lap-dancing clubs are a proxy for prices. Revisions are common, and in big, rich countries, bar America, tend to be upwards. Since less attention is paid to revised figures, this adds to an often exaggerated impression that America is doing far better than Europe. It also means that policy-makers take decisions based on faulty data.

If GDP is failing on its own terms, as a measurement of the value-added in an economy, its use as a welfare benchmark is even more dubious. That has always been so: the benefits of sanitation, better health care and the comforts of heating or air-conditioning meant that GDP growth almost certainly understated the true advance in living standards in the decades after the second world war. But at least the direction of travel was the same. GDP grew rapidly; so did quality of life. Now GDP is still growing (albeit more slowly), but living standards are thought to be stuck. Part of the problem is widening inequality: median household income in America, adjusted for inflation, has barely budged for 25 years. But increasingly, too, the things that people hold dear are not being captured by the main yardstick of value.

With a few exceptions, such as computers, what is produced and consumed is assumed to be of constant quality. That assumption worked well enough in an era of mass-pro-

duced, standardised goods. It is less reliable when a growing share of the economy consists of services. Firms compete for custom on the quality of output and how tailored it is to individual tastes. If restaurants serve fewer but more expensive meals, it pushes up inflation and lowers GDP, even if this reflects changes, such as fresher ingredients or fewer tables, that customers want. The services to consumers provided by Google and Facebook are free, so are excluded from GDP. When paid-for goods, such as maps and music recordings, become free digital services they too drop out of GDP. The convenience of online shopping and banking is a boon to consumers. But if it means less investment in buildings, it detracts from GDP.

Stop counting, start grading

Measuring prosperity better requires three changes. The easiest is to improve GDP as a gauge of production. Junking it altogether is no answer: GDP's enduring appeal is that it offers, or seems to, a summary statistic that tells people how well an economy is doing. Instead, statisticians should improve how GDP data are collected and presented. To minimise revisions, they should rely more on tax records, internet searches and other troves of contemporaneous statistics, such as credit-card transactions, than on the standard surveys of businesses or consumers. Private firms are already showing the way—scraping vast quantities of prices from e-commerce sites to produce improved inflation data, for example.

Second, services-dominated rich countries should start to pioneer a new, broader annual measure, that would aim to capture production and living standards more accurately. This new metric—call it GDP-plus—would begin with a long-overdue conceptual change: the inclusion in GDP of unpaid work in the home, such as caring for relatives. GDP-plus would also measure changes in the quality of services by, for instance, recognising increased longevity in estimates of health care's output. It would also take greater account of the benefits of brand-new products and of increased choice. And, ideally, it would be sliced up to reflect the actual spending patterns of people at the top, middle and bottom of the earnings scale: poorer people tend to spend more on goods than on Harvard tuition fees.

Although a big improvement on today's measure, GDP-plus would still be an assessment of the flow of income. To provide a cross-check on a country's prosperity, a third gauge would take stock, each decade, of its wealth. This balance-sheet would include government assets such as roads and parks as well as private wealth. Intangible capital—skills, brands, designs, scientific ideas and online networks—would all be valued. The ledger should also account for the depletion of capital: the wear-and-tear of machinery, the deterioration of roads and public spaces, and damage to the environment.

Building these benchmarks will demand a revolution in national statistical agencies as bold as the one that created GDP in the first place. Even then, since so much of what people value is a matter of judgment, no reckoning can be perfect. But the current measurement of prosperity is riddled with errors and omissions. Better to embrace a new approach than to ignore the progress that pervades modern life. ■

Philippine politics

Fatal distraction

The danger of personality-driven politics



FOR too long the Philippines was the sick man of Asia—cheerful, democratic but a chronic underperformer. In recent years, though, its fortunes have begun to turn. Much of the credit should go to the outgoing president, Benigno Aquino. The economy is booming and investors are flocking in. The country has gained in geopolitical importance, too, thanks to its resistance to China's expansionism.

But Mr Aquino's achievements risk being squandered by an old weakness at the heart of Filipino politics: its love of showmanship and personality over policy and administrative ability. Boxers and film stars project themselves into public jobs while the diligent and competent too often languish. This year's presidential campaign is no exception (see page 35).

The foundling and the beast

Ahead of the ballot on May 9th, the field is narrowing to two leading candidates. One is Grace Poe, a foundling, adopted daughter of an action-man actor (the late Fernando Poe junior, a failed presidential candidate), and now a telegenic senator. She promises continuity with Mr Aquino's pro-business policies, but her CV is thin and her campaign lamentably vacuous.

The front-runner, Rodrigo Duterte, is downright alarming. The mayor of the southern city of Davao, he likes to play the hard man. He has spoken approvingly of vigilante killings of suspected criminals, and promises to clean up the country by executing 100,000 lawbreakers and dumping their bodies in Manila Bay. Mr Duterte sneers at the *trapos*—short for “traditional politicians” and a pun on “old rags”. He appeals to those who have not shared in the boom. He is a proponent of a barely defined “federalism”. If he does not get his way within a year

of being elected, he says he will declare a “revolutionary government”. He made unforgivable remarks about wishing he had been among those who gang-raped an Australian lay minister who died in a prison riot in 1989. When American and Australian officials objected, he dared them to sever ties.

The leading candidates thus present voters with a ghastly choice between vapidty and vigilantism; neither shows any sign of being up to tackling the many serious issues facing an archipelago of some 100m people. The economic to-do list is long. For all the rosy growth figures, almost one-third of Filipinos, especially rural folk, live on less than \$3.10 a day (a measure of poverty for middle-income countries). Cities remain crippled by gridlock; graft is still endemic. And despite Filipinos' enthusiasm for democracy (the former dictator, Ferdinand Marcos, was evicted by a “people power” revolt in 1986) politics remains dominated by a few wealthy families—including Marcos's son, a leading vice-presidential candidate.

A serious geopolitical threat looms in the South China Sea, where disputed rocks and reefs are being built up provocatively by China into what are almost certainly new military bases. The Philippines has filed a closely watched lawsuit at the International Court of Justice, and is forming closer military ties with America, Japan and Australia. Mr Duterte, in particular, risks damaging these vital friendships if he is elected.

President Aquino (the son of a former president) has endorsed Mar Roxas, the competent interior minister (and grandson of an ex-president), in an attempt to institutionalise some sort of party system. Alas, Mr Roxas is a hopeless campaigner and is far behind in the polls.

What should Filipinos do? This newspaper's view is that the dull but diligent Mr Roxas would make the best next president. But if on May 9th he obviously has no chance of winning, then they should swing behind Ms Poe. Better the novice foundling, surely, than the beast of Davao. ■

Metropolitan growing pains

Little London



Britain's capital needs to build more. Its would-be mayors are short on plans for making that happen

THERE are many ways to kill the goose that lays the golden eggs. London's economy makes Britain rich. If Britons were to vote on June 23rd to leave the European Union, London would suffer. But another problem is just as threatening. Soaring property prices are constraining London's ability to foster new businesses and create jobs. The great city must overcome that problem if it intends to remain great.

The past two decades have been kind to the capital. It is growing by more than 100,000 new residents a year. Like other

booming cities, including New York, London thrives amid globalisation and technological change, which boost both demand for its financial services and the market for its startups.

Yet if London has given striving people and firms plenty of reason to come, it has done a poor job housing them. Building is maddeningly difficult. London has been adding only 25,000 or so new homes a year (New York City approved nearly that much in half the land area). The median price of a London home has tripled over the past two decades as a result. Office construction lags, too. Commercial property in London's West End is twice as expensive as in midtown Manhattan.

The main culprit is land regulation, which is strict everywhere in Britain but draconian in the capital. To many London- ➤

ers, these rules offer a defence against a tide of change that threatens to transform the very essence of their city. More building might well slow the growth in prices but would sacrifice London's character for economic expediency, they argue.

Such arguments are misguided. Cities cannot be frozen in aspic. London's very reluctance to build changes it, just as surely as a construction boom would do. The capital is an increasingly forbidding place for non-plutocrats: between 2001 and 2011 the disposable income of those renting private housing fell by nearly 30%. Businesses are worried, too. In early April more than 50 business leaders called for at least 50,000 new homes to be built each year, arguing that expensive housing was threatening their ability to recruit young talent. Productivity has begun to slow, as promising firms are forced out (see page 52). Overpriced property is costing London the economic and human diversity on which its prosperity depends.

London needs leaders

Londoners go to the polls on May 5th to elect a new mayor to replace the incumbent, Boris Johnson. You might expect the leading candidates to offer useful prescriptions for curing the capital's gravest ill. Alas, they do not. The hopefuls pay lip service to the need for more building, but then skitter down side streets. Zac Goldsmith, the Conservative candidate, encourages employers to lend workers the deposit they need to rent homes. Sadiq Khan, his Labour rival, wants a daft new form of rent control. Lamentably, both oppose the single best way to expand the housing supply: building more in the "green belt".

This swathe of undeveloped land around London's perim-

eter contains a fifth of the city's acreage. Far from being the Edenic retreat that its name suggests, almost half is underused scrub; 7% consists of golf courses for rich people. By one estimate, it includes nearly 20,000 hectares (49,000 acres) with no claim to outstanding beauty that lie within 800 metres of a Tube, train or tram station. Judicious building there could yield nearly a million new houses, while keeping plenty of attractive green space for the enjoyment of residents. In contrast, building on "brownfield" former industrial land—a politically more palatable option preferred by both leading candidates—is more expensive and less effective. Most economists reckon brownfield development could provide, at best, less than half the new housing London needs.

If it is disappointing that neither mayoral front-runner has the courage to counter the NIMBYist tendencies of London homeowners, it is not surprising. For, bully pulpit aside, London's chief executive has far less power than he should have over housing. Without the agreement of politicians in Westminster, the mayor can neither open the green belt to development nor pursue other useful policies—such as rewarding London councils that allow a lot of house-building by letting them keep more of the extra property-tax receipts this generates. The capital's housing woes won't be solved until that changes.

If Britons foolishly yank their country out of the EU and send firms and talent packing, London will become more affordable for all the wrong reasons. If they sensibly choose to remain in the EU, however, London's health, and the need for more building, will loom as a critical issue for British economic growth. It is time Britain's leaders realised that. ■

The ECB

Going negative

Germany should stop whining about negative rates and start borrowing



first headed that bank, Wim Duisenberg, said that it might be normal for politicians to express views on monetary policy, but it would be abnormal for central bankers to listen to them.

That was then. Now German and Dutch politicians are trying to browbeat Mario Draghi, the ECB's current president, into ending the bank's policy of negative interest rates (see page 47). The German finance minister, Wolfgang Schäuble, accused Mr Draghi of causing "extraordinary problems" for his country's financial sector; wilder yet, he also pinned on the ECB half of the blame for the rise of the populist Alternative for Germany (AfD) party.

Both countries' politicians attack low rates as a conspiracy to punish northern European savers and let southern European borrowers off the hook. ECB autonomy was sacred when rates suited Germany; now that rates do not fit the bill, and are imposed by an Italian to boot, it is another matter. The critics are not just hypocritical. They are partly responsible—let's say

50% to blame—for the mess.

As Mr Draghi has pointed out, his mandate is to raise the euro zone's inflation rate back towards 2%. It is currently at zero, and periodically dips into negative territory. There is a legitimate debate to be had about how far a negative-interest-rate policy can go. The banks are unwilling to pass on negative rates to depositors, which means their own earnings are dented. And yes, savers are undoubtedly suffering at the moment. But raising rates would squash the recovery, and with it any chance of a normalisation of monetary policy.

The ECB's policies of ultra-low rates and quantitative easing (printing money to buy bonds) are the same as those used by other central banks in the rich world since the onset of the financial crisis. Even the Bundesbank, whose allergy to inflation largely explains why the ECB was slower to embrace unconventional monetary policy than its peers, has felt compelled to defend Mr Draghi from attacks in Germany.

Fixed ideas, broken economy

The fundamental reason for Europe's low interest rates and bond yields is the fragility of its economy. Its unemployment rate is stuck at 10%. While the ECB has been doing what it can to press down the accelerator, however, the austerity preached by the likes of the German and Dutch governments has slammed on the brakes. For years, Mr Draghi has been saying ►

▶ that monetary policy alone cannot speed up the economy, and that creditworthy governments must use fiscal policy as well, ideally by raising public investment. If Mr Schäuble wants higher yields for German savers, he should be spending more money. Instead, his government is running a budget surplus.

A hesitation to spend might be understandable if it were difficult for the German government to find good investment opportunities. But Germany has suffered from low infrastructure spending for decades. Investment by municipalities has fallen by about half since 1991, according to a 2015 report by the German Institute for Economic Research; since 2003 it has failed even to keep pace with the deterioration of infrastructure.

Should Mr Schäuble wish for a demonstration of how the money might be spent, he might take a car journey from his office in Berlin to that of his colleagues in The Hague. He would

come to a halt halfway there, in Bad Oeynhausen, where the *Autobahn* peters out into a jammed four-lane city road. (As an EU report delicately put it last year, “The motorway is missing.”) A train would be just as slow: Germany’s high-speed trains can travel at their top speed of 300kph (190mph) on only a fraction of their routes.

The German and Dutch governments can currently issue ten-year bonds at yields of 0.3% and 0.5%. They should be taking advantage of cheap money to spend more on problems like these. That would stimulate short-term economic activity and facilitate long-term growth. There is no better way to help meet the desire of their ageing citizens for higher returns on their savings. If politicians want a scapegoat for the low rates that bedevil their savers, they would do better to look in the mirror than target the ECB. ■

Corporate propaganda

Sweet little lies

How to read between the lines of companies’ accounts



AMERICA’S corporate-earnings season is always a spectacle worth watching. Every quarter, in the space of a few weeks, 500-odd big firms report their results. Together, they are a barometer of the world economy: they account for a third of

global market value and make half of their sales abroad.

It matters that investors can easily decipher how these companies are doing. Instead, the quarterly reporting season has become a carnival of confusion, obfuscation and fibbing that would make even a presidential candidate blush. For a time after the financial crisis of 2007-08, firms were on best behaviour, keen to look investors in the eye and tell the truth and nothing but. Now, after a long bull market, investors have got lazy again and managers are taking the mickey.

In the cycle that is now under way, earnings-per-share are expected to drop by 9% for the first quarter, compared with the previous year, or by 4% once losses at energy firms are excluded. Some technology firms are also losing their shine: Apple, the world’s most valuable public company, this week reported its first drop in revenue since 2003 (see page 60).

Yet, too often, bosses sound more like salespeople than managers accountable to a board. The chief executive of IBM, Ginni Rometty, boasts of “transformation progress” and “double digit” growth in its “strategic imperatives”. In fact Big Blue is badly bloodied, with pre-tax profits falling by 66% (or 27% if you accept that a variety of costs are one-off, as the firm itself suggests). In a statement, Tim Cook, Apple’s boss, consoled shareholders with the news that the firm had “executed extremely well”.

It is trickier to tell if a line is being spun when the numbers that companies put out are also being finessed. All listed firms in America file their earnings according to strict accounting rules. For firms in the S&P 500 index, the gap between these official profits and the more flattering “adjusted” numbers that they shove in front of investors is now about 20%, well above the long-term trend. Often these adjusted profits come in mul-

multiple flavours. General Electric offers at least half a dozen measures of earnings. Microsoft’s latest profits rose by 6%, dipped by 3% or sank by 25%, depending on the metric.

There can be good reasons for some firms to adjust their official figures—to show the impact of big changes such as currency movements or acquisitions, for example. If regulators forced firms to focus on one “correct” number, you can be sure that managers would find ways to massage it. But much of the additional information they put out is distracting propaganda.

In a few cases firms have got away with conjuring up an alternative reality. Valeant, a drug company, ran itself using measures of profit invented by its managers. Its shares have collapsed in the last year. SunEdison, a loss-making solar-power company, emphasised voodoo metrics that supposedly captured its ability to sell assets to affiliated firms. It went bust in April. Listed partnerships with \$400 billion of assets, mainly in the energy sector, boast of paying high dividends even if they are unaffordable and financed with debt.

You can’t manhandle the truth

For investors trying to peer through the corporate veil, there are some obvious rules of thumb. A mature firm that cannot make a profit using standard accounting rules should be approached with a bargepole, as should any firm where the gap between official accounting profits and adjusted profits is persistent and large. If a firm makes abnormally low cash payments to the taxman, it may be a warning sign that it reports lower profits to the authorities than it does to its investors. Above all, investors should focus on cashflow. This is not a perfect measure: it doesn’t include the cost of the lavish stock options that technology firms award their staff, for example. But it is much harder to fiddle.

In 2015, 232 firms in the S&P 500 had cashflow (after capital investment) below their adjusted profits, according to Bloomberg, a data provider. By the time this earnings season is over, that list will be even longer. Investors can do better at spotting the shenanigans. But they should also remind managers that their job is to report a fair and accurate picture of their firms, not to polish reality as if they were selling second-hand cars. ■

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The anti-social network



Not content with running Facebook, Mark Zuckerberg is stepping up the battle of the technology giants by announcing plans to connect people in poorer countries via internet signals from solar-powered drones ("Imperial ambitions", April 9th). Facebook craves more users and more data, but at what cost? Regardless of the technology, the fear is that Mr Zuckerberg's latest venture could backfire in this age of transparency and declining consumer trust. This year's Edelman Trust Barometer featured the "inversion of influence", whereby decisions

made at the top are the least trusted. A recent survey by Prophet, a consultancy, had Facebook ranked 200th in terms of consumer trust.

In an age where technology is increasingly about anticipating future need as well as meeting current need and a more personalised service is linked to surveillance, the repercussions of this space odyssey will be wide-ranging and complex. Mr Zuckerberg's sheer determination does not necessarily guarantee success—and it will make the likes of Microsoft and Google even more competitive. I would urge the ambitious Mr Zuckerberg to heed the story of Icarus; Google will clip his wings for starters.

ROB HUNTER
Managing director
Hunterlodge Advertising
Rickmansworth, Hertfordshire

You portrayed Mr Zuckerberg magnificently as the divine Augustus, signifying the tech giant's imperial reach. A more telling analogy might have been a large poster of Mr Zuck-

erberg's face, with the slogan "Facebook is watching you". Your concerns about Facebook's ever-changing privacy policy were placed in the context of risks to its reputation and possible regulatory clashes. But you passed over the implications of this "universal passport" for personal freedom and choice. Facebook holds our entire lives in its servers: our expressed feelings, our political views, the identities of our friends and lovers, with photographs of all. Our preferences and locations are tracked, our data mined. Closing an account is no straightforward matter—try it. Luckily for "the spirit of Man", as Winston Smith called it in "1984", you identify Facebook's great and single weak spot: it needs to be "liked".

DAVID JOHN
London

You underestimate the disruption that will be caused by virtual reality (VR). Unlike augmented reality, which projects ancillary information onto the real world, VR creates

entirely parallel worlds, unconstrained by mundane inconveniences. Thanks to the rapid development of processing power, these virtual worlds will eventually be indistinguishable from real life.

Within 10-20 years we should expect to spend more time in VR than in the real world: the impact on the job economy, education and entertainment will be dramatic. It is for that reason Facebook and others are investing so heavily in virtual reality. It will literally be a whole new world.

TORSTEN REIL
Chief executive
NaturalMotion
Oxford

Joel Stern on SVM

There were some shortcomings in your otherwise fascinating discussion of shareholder value management and policy (SVM) ("Analyse this", April 2nd). You were correct that the original thinking on the subject was developed by Franco Modigliani and Merton Miller in their 1958 and 1961

Romans & Aqueducts

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papers on the theory of valuation. But the fact is that the ideas presented in McKinsey's book, "Valuation", now in its sixth edition, were found for the first time in my book, "Analytical Methods in Financial Planning", first published in 1972. Almost all of the ideas in my book were covered in 96 articles I wrote for the *Financial Times*, each of which was designed to provide a specific lesson in both the theory and policy of corporate finance: "how to" as opposed to "what's going on". They deal with a much broader range of subjects including, for example, "Why people believe capital markets are inefficient."

There are other contributors to SVM, including Eugene Fama, from the University of Chicago, Stephen Ross of MIT and Richard Roll of UCLA. Valuation involves both selecting an appropriate measure of corporate performance and also a required rate of return for risk in achieving that corporate performance. My contribution was recognising that "discounted cashflow" as a

process and "net present value" as a measure do not provide a way to solve the corporate-governance problem, such as designing incentives on pay for senior management down through middle management and even to the shop floor.

In order to accomplish the latter on corporate governance and remuneration, it was essential to develop a new concept called "economic value added", which provides a way of measuring performance year-by-year contemporaneously, so that rewards can be paid in the current year based on actual performance.

JOEL STERN

Chairman

Stern Value Management
New York

All about Czechia

I was a little disappointed when reading your article about the move to introduce Czechia as the Czech Republic's short name ("Metamorphosis", April 23rd). Czechia is the literal translation of *Ěsko*.

You wrote that in the 1920s, the writer Karel Capek said *Ěsko* was "not musical" and that "it even sounds a little facetious" to foreigners. But he never wrote that about *Ěsko/Czechia*; he was referring, in an article from 1922 co-written with his brother, Josef, to the word *Ěskoslovensko/Czechoslovakia*.

You also say that the "Cz" spelling used in English "comes from Polish, not Czech. It may have been adopted as a result of the influx of Jews from Poland to the Anglophone world in the 19th century". However, the spelling comes from the Czech itself. From the Middle Ages until the orthographic reform of 1842 (when it was changed into *Ěch/Ěchy*), the name of the people and the country were spelled *Czech/Czechy*. The first use of the English term Czechia comes from 1841, in an encyclopedia written by two English churchmen who used Czech sources, continuing the already long-established tradition of the use of that word in Latin. There is no Polish or

Jewish intermediary documented anywhere in this process; that is pure speculation based on a superficial comparison of the English and Polish orthography.

JIRI SITLER

Historian and diplomat
Stockholm

Trust the trusts

I think you are wrong to support the public dissemination of beneficial ownership in an impetuous effort to combat offshore tax evaders ("The lesson of the Panama papers", April 9th). This is a reckless violation of personal privacy and stands to put in physical danger law-abiding individuals and their relatives around the world. The vast majority of offshore strategies are used legally, for a variety of business and privacy purposes. In fact, your position goes beyond the current scope of the OECD's noxious "common reporting standard". This will gather and automatically exchange individual names, addresses, tax-identification numbers, ▶▶

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► and financial-account balances with the governments of countries such as Azerbaijan, Cameroon, China, Kazakhstan, Russia and Uganda. Where the information might go from there, no one knows.

Shaming kleptocrats with a public database will not bring an end to the shadow financial system. What it will do is make many honest people and their families more vulnerable to extortion and kidnapping.

GREGORY CRAWFORD

President

Alliance Trust Company of Nevada

Reno, Nevada

A hesitant divorce

You say that many people who are unsure how to vote in Britain's referendum on whether to stay or exit the European Union will decide on the basis of whether Brexit is likely to make them better or worse off ("The economic consequences", April 9th). Most divorces leave both parties worse off and the future uncertain. But these

days, that is rarely a reason for a couple who have fallen out of love to wait until death to part. Provided both sides have an equal say in the matter, those who are unsure how to vote won't do so.

GINA ANTCHAK

Lymington, Hampshire

Boris Johnson, London's mayor and a leading Brexiteer, scurrilously suggested that the "half-Kenyan" Barack Obama's reason for wanting Britain to remain in the EU was based on an old resentment of the British empire. Since one of Mr Johnson's forebears was Turkish, are we to dismiss his antipathy to the EU as being motivated by the fact that he is "part-Turkish"? That would be unworthy, which is why Mr Johnson was ill-advised to try to raise the president's family background.

With only two months to go, I am left wondering how much further into the political gutter Mr Johnson will try to take the debate.

ANDREW HALPER

London

Employing brain power



"Beautiful minds, wasted" (April 16th) was a welcome attempt to tackle the stigma associated with autism, emphasising how various features of parts of the spectrum, increased focus, reliability and honesty, could benefit employers. But autism is not alone among psychological differences in representing possible opportunities to bosses. Recent research has begun to uncover a positive association between worry, rumination and some anxiety disorders, with higher intelligence. Perhaps a more "emotionally intelligent" workplace might learn to

embrace a wider spectrum of people with different outlooks on life, for mutual benefit.

As F. Scott Fitzgerald put it in "The Crack Up", an essay first published in *Esquire* in 1936, "The test of a first-rate intelligence is the ability to hold two opposed ideas in mind at the same time and still retain the ability to function."

Does this increasingly look like the demands of a modern-day office?

RAJ PERSAUD

Consultant psychiatrist

SIR SIMON WESSELY

President

Royal College of Psychiatrists
London

Most funding on autism clings to the old view of "genetics-first/brain-wiring" paradigm. As the father of an autistic child and as a professional experienced in the biomedical industry, the current approach to tackling the condition frustrated me to the point where I founded the N of One: Autism Research Foundation. This organisation takes a "venture capital" approach to seeding ►►

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▶ potential breakthroughs in our understanding of the biology of autism by funding research that lies outside the conventional, but largely unproductive, consensus view.

Although I appreciate the attention to autism that *The Economist* brought to tackling autism's challenges and agree that more medical research should be a top priority, I believe the greatest returns to society will come when we expand our medical-research focus beyond a paradigm that has failed to produce treatments and answers.

JOHN RODAKIS

Founder
N of One: Autism Research
Foundation
Dallas, Texas

Peru's election

"A dangerous farce" (April 9th) misconstrued Peru's electoral process. The electoral authority did not "subvert democracy and the rule of law". It ruled in strict accordance with election law. The European Union Observation

Mission was one of a dozen impartial witnesses. It suggested improvements that could be made for the future but acknowledged the election was democratic and certified its transparency. The chief observer from the OAS shared that assessment. Moreover, no observer has questioned the integrity of the authorities, nor the legitimacy of the whole process or its results.

Millions of Peruvians went to the polling stations to elect a new government for the next five years, and to decide which candidates will proceed to the second round. As stated by the EU High Representative, the elections proved Peru's commitment to democracy.

CLAUDIO DE LA PUENTE
Ambassador of Peru
London

Zap!

Aircraft do not only face the threat of bird strikes when taking off or landing at airports ("Sonic scarecrow", April 16th). Birds in transit, such as migratory formations, are also a

danger. I have for some time wondered if laser technology could be used to deal with this hazard, but thought it would be too bulky, require too much power and be slow to aim at the offending birds.

However, your preceding article on space travel, "Starship enterprise", suggests the feasibility of such an initiative. The laser beams would only have to focus on a fairly small short-range cone that would destroy the bird prior to entering the engine. As the technology of robotics and artificial intelligence (AI) is progressing, the operation of the laser could be automatic rather than requiring pilot intervention.

The dust and ashes of a lasered bird would probably not be a sufficient problem to cause serious engine malfunction; inspection after a safe landing would confirm if any maintenance work was necessary.

JOHN CHURCHILL
Former air-traffic controller and senior manager in the RAF
Christchurch, Dorset

Tongue and groovy

Schumpeter noted Boston Consulting Group's calculation that "less than 15% of firms have developed a business strategy focused on the elderly" (April 9th). I have been fortunate enough to work for astute companies that sell to older folks, including my present task of marketing a deluxe range of designer tongue-scrapers. At first we targeted the product to the young date-conscious and their bad-breath anxieties, but we quickly refocused on wine drinkers with declining palates and geriatrics with fading appetite.

A swift tongue-scraper removes the debris that blocks taste-bud efficacy.

MANO MANOHARAN
London ■

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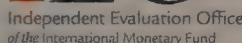
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Contact: Thania at thania@caglobalint.com

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Contact: Danelle at danelle@caglobalint.com

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Contact: Danelle at danelle@caglobalint.com

Senior Manager, Intra African Trade Facilitation

Contact: Danelle at danelle@caglobalint.com

Manager, Strategy & Business Planning

Contact: Thania at thania@caglobalint.com

Manager, Innovation

Contact: Thania at thania@caglobalint.com

Manager, Research (Trade Information)

Contact: Pandora at pandora@caglobalint.com

Manager, IT Services (Business Applications)

Contact: Sharon at sharon@caglobalint.com

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Contact: Sharon at sharon@caglobalint.com

Manager, Protocol Services

Contact: Pandora at pandora@caglobalint.com

Manager, Intra African Trade Finance

Contact: Danelle at danelle@caglobalint.com

Manager, Treasury Operations (Africa Resource Mobilisation)

Contact: Pandora at pandora@caglobalint.com

Manager, Treasury Marketing (Africa Resource Mobilization)

Contact: Pandora at pandora@caglobalint.com

Associate, Client Relations

Contact: Lizette at lizette@caglobalint.com

Associate, Agency & Security Trustee

Contact: Danelle at danelle@caglobalint.com

Associate, Trade Information

Contact: Sharon at sharon@caglobalint.com

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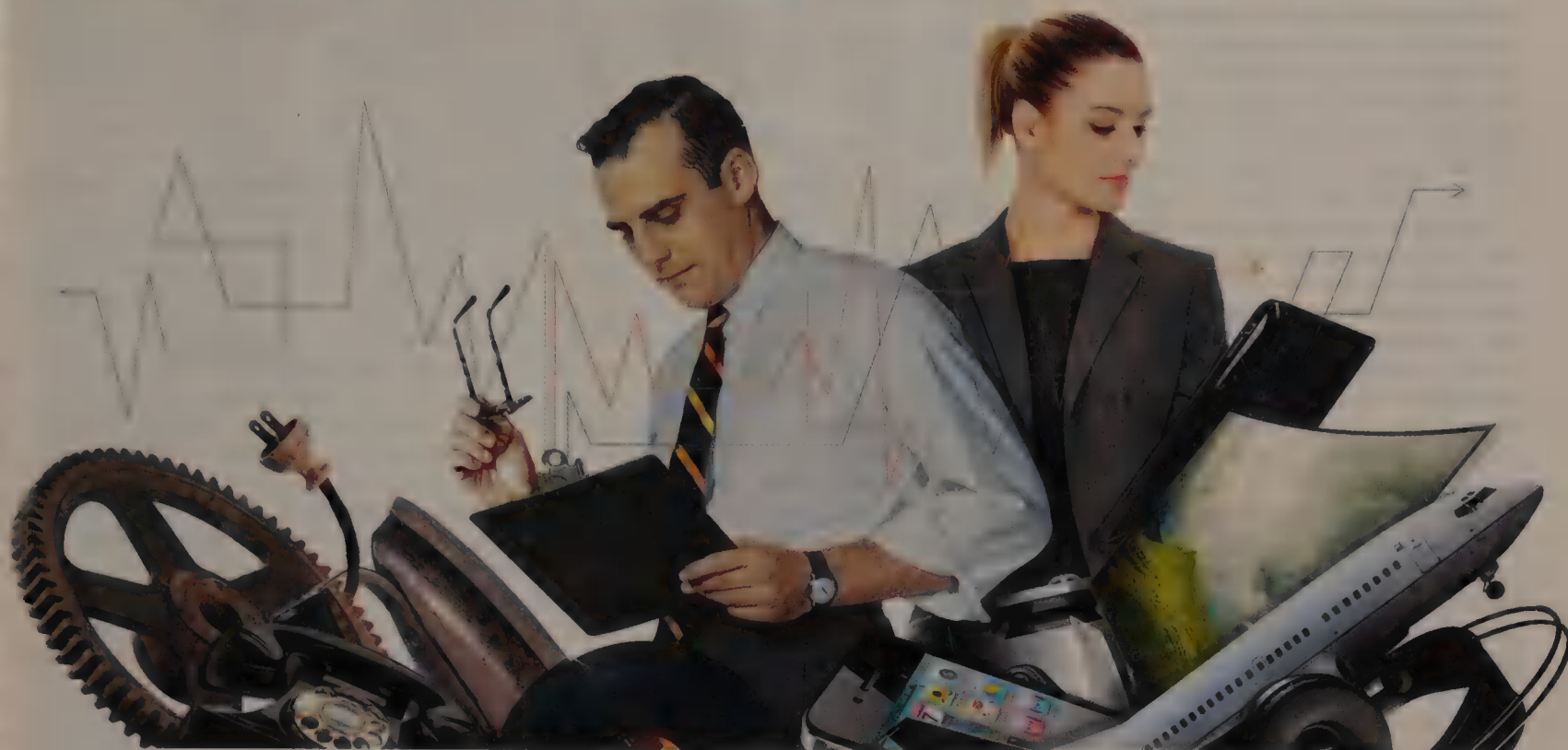
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The trouble with GDP

Also in this section

22 Why GDP figures will not stay still

Gross domestic product (GDP) is increasingly a poor measure of prosperity. It is not even a reliable gauge of production

ONE of Albert Einstein's greatest insights was that no matter how, where, when or by whom it is measured, the speed of light in a vacuum is constant. Measurements of light's price, though, are a different matter: they can tell completely different stories depending on when and how they are made.

In the mid 1990s William Nordhaus, an economist at Yale University, looked at two ways of measuring the price of light over the past two centuries. You could do it the way someone calculating GDP would do: by adding up the change over time in the prices of the things people bought to make light. On this basis, he reckoned, the price of light rose by a factor of between three and five between 1800 and 1992. But each innovation in lighting, from candles to tungsten light bulbs, was far more efficient than the last. If you measured the price of light in the way a cost-conscious physicist might, in cents per lumen-hour, it plummeted more than a hundredfold.

Mr Nordhaus intended this example to illuminate a general point about how flawed economists' attempts to measure changes in living standards are. Any true reckoning of real incomes must somehow account for the vast changes in the quality of things we consume, he wrote. In the case of light, a measurement of inflation

based on the cost of things that generated light and one based on a quality-adjusted measure of light itself would have differed by 3.6% a year.

When a first-year undergraduate first encounters the idea of GDP as the value added in an economy, adjusted for inflation, it sounds pretty straightforward, says Sir Charles Bean, the author of a recent review of economic statistics for the British government. Get into the details, though, and it is a highly complex construct—and, as Mr Nordhaus's fable shows, a snare for the unwary.

The production boundary

Measuring GDP requires adding up the value of what is produced, net of inputs, across a wide variety of business lines, weighting each according to its importance in the economy. Both the output and the materials (if any) used up in making it have to be adjusted for inflation to arrive at a figure that allows for comparison with what has gone before.

This is tricky enough to do for an economy of farms, production lines and mass markets—the setting in which GDP was first introduced. For today's rich economies, dominated by made-to-order services and increasingly geared to the quality of experience rather than the production of ever

more stuff, the trickiness is raised to a higher level. No wonder GDP statistics are still so prone to constant and substantial revision (see box on next page).

The problem is not just that it is hard to make these calculations. It is that what the calculations produce is a measure put to too many purposes, and, though useful, not truly fit for any of them. And there are worries that things may be getting worse. As the price of light illustrates, standard measures miss some of the improvements delivered by innovation. But at least new lighting products show up in the figures once people start buying the things in sufficient volume. These days it seems that a growing fraction of innovation is not measured at all. In a world where houses are Airbnb hotels and private cars are Uber taxis, where a free software upgrade renews old computers, and Facebook and YouTube bring hours of daily entertainment to hundreds of millions at no price at all, many suspect GDP is becoming an ever more misleading measure.

The modern conception of GDP was a creature of the interwar slump and the second world war. In 1932 America's Congress asked Simon Kuznets, a Russian-born economist, to estimate national income over the preceding four years. Until he produced his figures just over a year later, no

One knew the full extent of the Depression. In Britain Colin Clark, an enterprising civil servant, had been collecting statistics on national income since the 1920s, and in 1940 John Maynard Keynes made a plea for more detailed figures on Britain's capacity to make guns, tanks and aeroplanes. He went on to establish the modern definition of GDP as the sum of private consumption and investment and government spending (with account taken for foreign trade). Kuznets had treated government spending as a cost to the private sector, but Keynes saw that if wartime procurement by the state was not treated as demand, GDP would fall even as the economy grew.

Keynes's idea of GDP won out on both sides of the Atlantic and soon spread further. Countries that wanted to receive post-war aid under America's Marshall plan had to produce an estimate of GDP. In the 1950s Richard Stone, a protégé of Keynes, was asked by the United Nations to prepare a template for GDP accounting that could be used by all member states. To be a nation was, in part, to know your GDP.

In wartime, GDP was concerned with managing supply. With peace, the influence of Keynes's ideas on fighting slumps flipped it into a way to manage demand, as Diane Coyle notes in her book, "GDP: A Brief but Affectionate History". Either way it was (and is) a measure of production, not of welfare—which, as GDP growth became a goal for politicians, also became an occasion for criticism.

A measure created when survival was at stake took little notice of things such as depreciation of assets, or pollution of the environment, let alone finer human accomplishments. In a famous speech in March 1968, Robert Kennedy took aim at what he saw as idolatrous respect for GDP, which measures advertising and jails but does not capture "the beauty of our poetry or the strength of our marriages".

It's a manufacturer's world

From time to time, such dissatisfactions have brought forth alternatives. In 1972 Mr Nordhaus and James Tobin, a colleague at Yale, came up with a "measure of economic welfare" which counted some bits of state spending, such as defence and education, not as output but as a cost to GDP. It also adjusted for wear-and-tear to capital and the "disamenities" of urban life, such as congestion. The paper was in part a response to environmentalist concerns that GDP treats the plunder of the planet as something that adds to income, rather than as a cost. It was much talked about; it was not much acted on. In 2009 a report commissioned by the French president, Nicolas Sarkozy, and chaired by Joseph Stiglitz, a prominent economist, called for an end to "GDP fetishism" in favour of a "dashboard" of measures to capture human welfare.

Kennedy was right. Much that is valu-

GDP revisions

Rewriting history

The nation's income is a constantly moving target

BY HOW much did Britain's economy grow in 1959? It would seem to be a question that ought to have been settled long ago. It hasn't been. Samuel Williamson of the University of Illinois finds that in the British government's annual "Blue Book" reports on GDP in the half-century or so since this uncelebrated year, there have been 18 different answers. The Blue Book published in 1960 said 2.7%; that of 2012 said 4.7%. British GDP, it seems, is under almost constant revision.

Britain is scarcely alone in rewriting recent history. Recent research by the OECD, a rich-country think-tank, found that for G7 countries the average absolute revision to GDP growth figures three years after preliminary estimates was at least as large as those seen in Britain. Those revisions tend always to increase the initial estimate—except in America, the only economy where initial estimates are usually too optimistic. Beyond three years, though, there is evidence that revisions in Britain are larger than its rich-country peers.

In poor countries, revisions can be huge. Nigeria's GDP was revised up by 89% in 2014. Later that year, Kenya's GDP

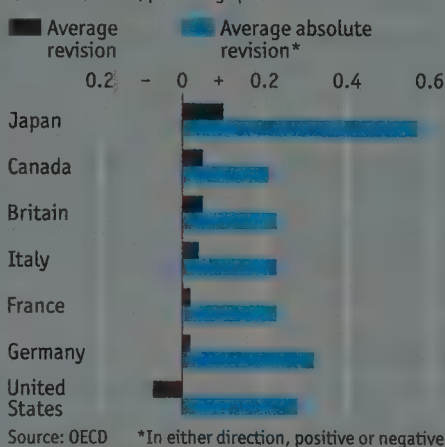
was revised up by 25%. Ghana's GDP had been upgraded by 60% in 2010.

Some of these bigger changes to GDP estimates are outcomes of "rebasings". GDP is measured by reference to a survey of the economy in a "base" year in which statisticians look at a sample of firms across business lines to gauge how quickly production is growing. The weight given to each industry depends on its importance to the economy in that year. As the economy changes over time, with some sectors growing faster than others, this snapshot becomes less accurate. Before its revisions in 2014, the base year for Nigeria's GDP had been 1990, providing a hopelessly outdated picture of the economy. The revised figures, based on 2010, gave due weight to industries, such as mobile telephony and filmmaking, that had sprung up in the meantime. In Kenya and Ghana, a delay in updating the base year meant their GDP figures had become similarly inaccurate.

To avoid periodic rebasing rich countries have switched to "chain-weighting", a system by which the base year is updated each year. Even so, new data or changes to the way GDP is calculated result in frequent revisions. There are a number of ways of calculating GDP—it can be treated as the sum of all value added, or the sum of all income or the sum of all expenditure—and they can be used to cross-check each other, but the data needed for the different methods do not become available at the same time. In Britain, early estimates of GDP rely on proxies for output, such as business turnover. As more information on spending and incomes from, for instance, tax returns is available, the cross-checking begins, which usually sees the figure revised upwards. Changes to the way GDP is estimated also typically lead to upward revisions; statisticians become better at tracking new industries or business models. There is, it seems, an upward drift to GDP measures over time.

Faulty first impressions

Revisions to quarterly GDP growth three years after preliminary estimate
Q4 1994–Q4 2013, percentage points



able is neither tangible nor tradable. But much that is tradable is also not tangible. A problem with GDP even when it is being asked to do nothing more than measure production is that it is a relic of a period dominated by manufacturing. In the 1950s, manufacturing made up more than a third of British GDP. Today it makes up a tenth. But the output of factories is still measured much more closely than that of services. Manufacturing output is broken down into

24 separate industries in the national accounts; services, which now make up 80% of the economy, are subdivided into only just over twice that number of categories.

A bias toward manufacturing is not the only distortion. By convention GDP measures only output that is bought and sold. There are reasons for this, only some of them sound. First, market transactions are taxable and therefore of interest to the exchequer, an important consumer of GDP

statistics. Second, they can be influenced by policies to manage aggregate demand. Third, where there are market prices, it is fairly straightforward to put a value on output. This convention means that so-called “home production”, such as housework or caring for an elderly relative, is excluded from GDP, even though such unpaid services have considerable value. In early editions of his bestselling economics textbook Paul Samuelson joked that GDP falls when a man marries his maid.

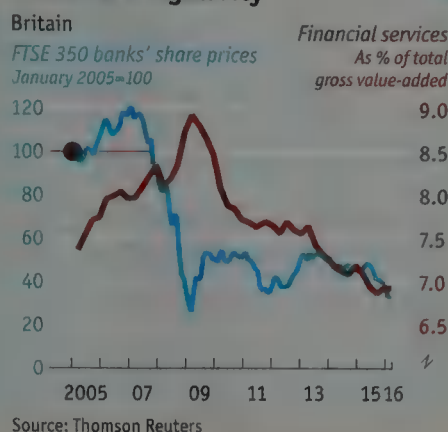
Despite convention, a lot of what is included in GDP lies outside the market economy. Many government services are provided free, and for decades the value given to such output was simply the cost of provision. It is only fairly recently that statisticians have started to measure some bits of public-sector output directly by, for instance, counting the number of operations performed by health services or the number of students taught in schools.

Some private-sector services are also measured indirectly. Housing services is one. This is straightforward wherever householders rent the property they live in. Rental payments capture both the value of housing services to tenants as well as the income of landlords from providing them. But in places where most people own the home they live in, a large part of the total value of housing services has to be imputed.

Finance is another activity that is mostly measured obliquely (and badly). Typically financial services are not paid for directly in fees: banks make a large part of their income from charging more interest on loans than they pay on deposits. To capture the value being added, statisticians use an imputed figure, the “spread” between a risk-free interest rate and a lending rate, and multiply this by the stock of loans. The problem with this method is that the lending spread is a measure of the risk banks take. For this reason its use in GDP figures can have perverse results. For example, at the turn of 2009 Britain’s financial sector was close to collapse. But because fear of bank defaults was driving spreads up, GDP figures recorded a spike in the sector’s value added, and thus its contribution to GDP (see chart 1).

As statisticians try to capture ever more of the economy’s output in their figures, new activities are added to GDP. In 2013 an EU agreement on GDP standards, for example, included income from selling recreational drugs and paid sex work. In Britain, the changes added 0.7% to GDP. How much credence should be given to that figure, though, is open to doubt. The statisticians have to fall back on crude proxies to estimate what is going on: thus the paid-sex market is assumed to expand in line with the male population, and the charges at lap-dancing clubs are taken as a measure of the price of sex. Leaving aside the appro-

Financial irregularity



priateness of these approximations, Paul Samuelson might have been spurred to muse on the GDP implications of a woman marrying her gigolo. Robert Kennedy might have asked if a nation is really doing better when its sex- and drug-trades are growing more quickly.

The price is wrong

A further complication is that, for all the caution that statisticians offer against seeing GDP as a measure of welfare, the two are intertwined in perhaps the trickiest part of their calculations: adjusting for inflation. Inflation is a measure of how much more you have to pay this year than you did last year to achieve the same level of well-being. It is at least as challenging to measure as output.

For a start, a change in the price of a product will influence how much of it people buy. If red apples rise in price, people buy more green apples; if the price of beef shoots up, they buy more pork. There are tricks that capture this sort of substitution when compiling price measures. One is the “geometric-mean aggregation” of price quotes. Multiplying together the prices of n goods and then taking the n th root of the product allows price aggregations to take into account a degree of switching proportionate to the change in relative prices. This sounds abstruse: but getting it right has an effect of lowering inflation by half a per-

centage point or so. Broader shifts in consumer preferences are picked up by updating the weights attached to each category of goods in the overall price index.

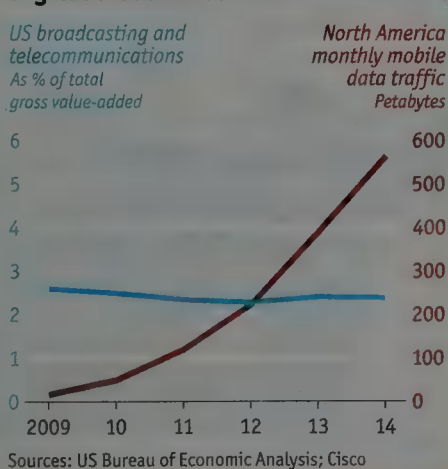
Then come adjustments for changes in quality. This year’s smartphone might cost more than last year’s, but if so it will also do more. If statisticians focus only on changes in price, they will overstate the true inflation rate by missing improvements in performance. An advisory committee of leading economists set up by America’s Senate in the mid-1990s and headed by Michael Boskin, of Stanford University, reckoned that failure to adjust for quality and new products meant true inflation was overstated by at least 0.6% a year. It called for greater use of “hedonic” estimation, a technique that captures the implicit value of each particular attribute of a product by measuring how variation in those traits affects the product’s price: for example, how much more do people pay for a brighter light bulb? Once an implicit price for each attribute is established—processor speed, or memory, say, for a phone—prices are tweaked accordingly.

Hedonic estimation helps. But it is a labour-intensive business, because the implicit prices have to be updated frequently to ensure accuracy; in practice only a small fraction of prices are adjusted in this manner. It also runs into problems when quantitative changes get so large as to become qualitative. A modern flat-screen television is simply a different beast from the squat little cathode-ray tube numbers of the 1980s.

Such adjustments are even harder to do for services, which tend to be bespoke, than for goods, which are still for the most part standardised. The value of a meal, for instance, depends on the cooking and ingredients but also on the speed of service, the background noise, how close together the tables are, and so on. Each of these factors can change from one period to the next. The true value of public-sector services is even harder to measure comparably over time. The number of operations can be counted quarter by quarter. Their effects on health and longevity may not be seen for years or decades.

As the Boskin commission pointed out, new products are a particular headache. In theory their value to consumers is the gap between the reservation price (what consumers are willing to pay) and the actual price, known as “consumer surplus”. In practice, new products enter the consumer-price index without any such adjustment. Then there is the sort of novelty that broadens choice. The number of TV channels or over-the-counter painkillers available in America, for instance, is overwhelming. Yet in 1970 there were just five of each. Though people may complain about too much choice, this greater variety is to a great extent a boon. But it is invisible ▶▶

Digital dissonance



► to GDP measures. For GDP, the output of a million of shoes in one size and colour is the same as a million shoes in every size and colour.

The benefits of many new products are simply not picked up at all. The upfront costs of providing services on a digital platform, such as Facebook or Twitter, are hefty. But the marginal cost is close to zero, and the explicit price to users is normally nothing. By global convention, zero-priced goods are excluded from GDP. So are all voluntary forms of digital production, such as Wikipedia and open-source computer programs. Some of this unpaid-for activity can be picked up in the accounting; although there is no charge for a Google search, consumers pay a shadow price by supplying information and attention, for which advertisers pay. But the advertising revenue is likely to be well below the benefits that consumers get.

The review chaired by Sir Charles Bean outlined two other possible approaches to valuing free digital services. One is to estimate the value of the time spent on the internet. The Bureau of Economic Analysis, America's main statistical body, has used market wage rates to estimate the value of home-production activities, such as cooking, cleaning and ironing. Following a similar approach, Erik Brynjolfsson and Joo Hee Oh of MIT estimated that the welfare gain of free internet products added 0.74% a year to America's GDP between 2007 and 2011 (other studies reach somewhat lower estimates). The other approach uses rising internet traffic as a proxy (see chart 2 on previous page). The review cites research which found consumer internet traffic in western Europe growing at 35% a year from 2006 to 2014. If the output of IT services had grown at a similar clip, official GDP growth rates in Britain would have been 0.7 percentage points higher each year.

It is not just that many new services are now given away free; so are some that used to be paid for, such as long-distance phone calls. Some physical products have become digital services, the value of which is harder to track. It seems likely, for instance, that more recorded music is being listened to than ever before, but music-industry revenue has shrunk by a third from its peak. Consumers once bought newspapers and maps. They paid middlemen to book them holidays. Now they do much more themselves, an effort which doesn't show up in GDP. As commerce goes online, less is spent on bricks-and-mortar shops, which again means less GDP. Just as rebuilding after an earthquake (which boosts GDP) does not make people wealthier than they were before, building fewer shops does not make them poorer.

These problems do not invalidate the use of GDP. But given the direction of technological change in an ever-more digital world they seem likely to grow more seri-

ous, and solutions to them are both hard and imperfect. Measuring the consumer surplus from new or free products relies on brave assumptions; estimates vary widely depending on which ones are used. To be consistent over time would require measuring the consumer surplus of goods and services that are well established in the consumer basket.

A sense of the scale of the task can be gained from looking at estimates of how fast the economy grew during a previous time of headlong technological change—the Industrial Revolution. Around the time that GDP was first being used to measure contemporary economies, some economic historians ventured to apply it to the past, too. They concluded that there had been a sudden take-off in economic growth after 1750; a landmark post-war study reckoned that GDP per worker rose by 1.4% a year, an unprecedented rate, in the first half of the 19th century.

You say you measured a revolution

In the 1980s, research by Nicholas Crafts of Warwick University found that the 18th century's glut of industrially transformative inventions had been applied rather narrowly, with madcap growth seen only in a few sectors of the economy. He put productivity growth at a less revolutionary 0.5% a year. A generation further on colleagues of Mr Crafts, led by Steve Broadberry, published research which nudged the figures back up a bit. Even centuries on, it is hard to settle on GDP estimates in times of upheaval. And they still miss many of the changes wrought—the consumer surplus due to railways, say.

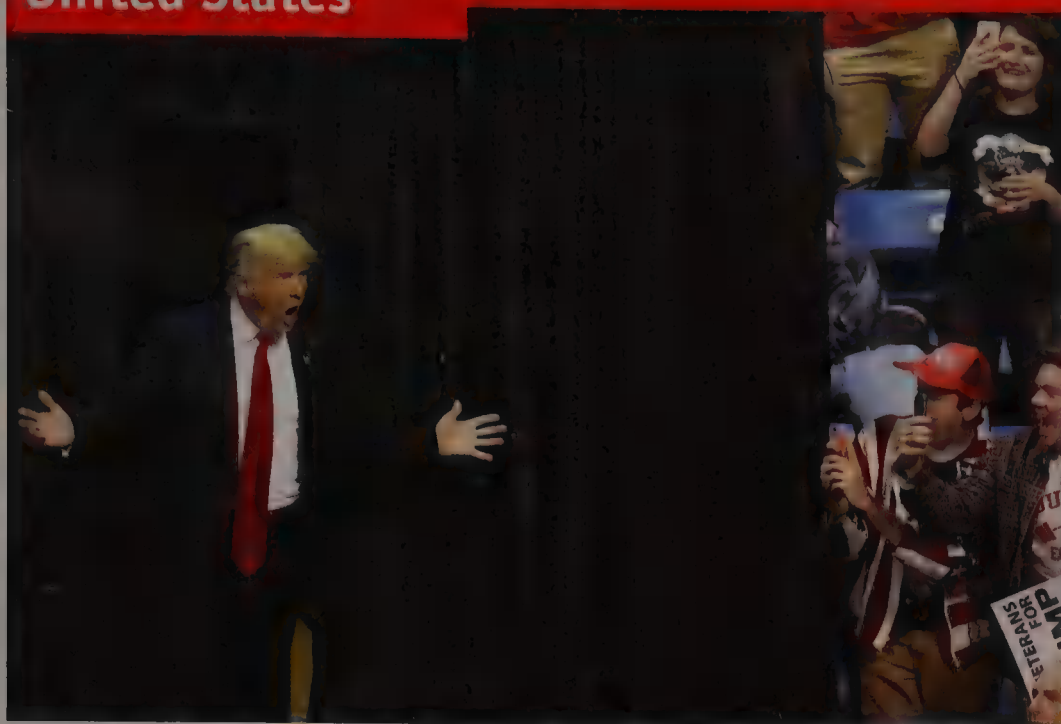
"It is a big mistake to think that one number serves for all purposes," says Sir Charles. The problem is that, as things

stand, GDP risks serving all its purposes ever-less well. The Bank of England has become so chary of GDP figures that it publishes a range of numbers both for its forecasts of growth and for its history. Its latest projections put recent GDP growth in Britain somewhere between zero and 4%. Such hyper-scepticism might seem a bit silly. But is it really no more absurd than proclaiming, with great certainty, that GDP growth in China fell from 6.8% to 6.7% in the year to the first quarter, when it almost certainly didn't?

If comparisons of GDP from one quarter to the next are dodgy, those from decade to decade are perilous. America's Census Bureau calculates that median household income, adjusted for inflation, was barely higher in 2014 than it was 25 years earlier. Measured living standards for a typical American have stagnated for a quarter-century, in other words. This finding undoubtedly reflects something real. But would a typical American really be indifferent between 1989 medical care at 1989 prices and today's medical services at current prices, asks Ken Rogoff of Harvard University? If GDP figures really measured what they try to measure, that would be the rational stance.

The challenge, said Mr Nordhaus in his paper on light, is to construct measures that "account for the vast changes in the quality and range of goods and services that we consume." But that means finding ways to more readily compare hand-held e-mail with fax machine, self-driving car with jalopy, vinyl records with music-streaming services and custom-made prosthesis with health-service crutches. Perhaps an Einstein could do it. Odds are, though, that he'd take one look and stick with the simplicities of physics instead. ■





The north-eastern primaries

Top Trump

PITTSBURGH AND WASHINGTON, D.C.

After an impressive five-state sweep, Donald Trump is starting to look unstoppable

IT SEEMS it could really happen, the most viciously personalised, all-round nasty presidential face-off imaginable: Hillary Clinton against her old pal Donald Trump. That was the main takeaway from the big wins the respective Democratic and Republican front-runners scored in five north-eastern primaries, Connecticut, Delaware, Maryland, Pennsylvania and Rhode Island, on April 26th. Because, while both candidates had been expected to do well, and though Mrs Clinton's grip on the Democratic nomination had already looked secure, the unexpectedly eye-watering totality of Mr Trump's victories was potentially race-changing. As the Republican contest now swings westwards, for ten last state primaries, the party bigwigs scrabbling to Stop Trump have their work cut out; if he wins in Indiana on May 3rd, Mr Trump may be unstoppable.

To make up the ground he recently lost in Wisconsin—and get back on track for the requisite 1,237 delegates—he was estimated to need a little over 100 of the 118 elected delegates available this week. He won 109, on the back of his biggest wins in terms of vote-share yet. In New York on April 19th he cracked 50% of the vote for the first time; he repeated that feat in all five north-eastern states—winning Rhode Island with 64%, Delaware with 61%. He won almost every county in every state. Ted Cruz and John Kasich were humiliated.

Of the 213 delegates available in the north-eastern quintet and New York, the

Texan senator, who has styled himself the only plausible anti-Trump candidate, won just three. Flailing to distract journalists from this meltdown, he declared on April 27th that Carly Fiorina, a failed presidential candidate and businesswoman known for the massive job losses she oversaw at Hewlett-Packard, would be his running-mate. Judged on Ms Fiorina's performance earlier in the contest, it is as well he may not need her. Mr Kasich's haul, of nine delegates, was even worse; the Ohio governor had remained in the contest, despite winning only his own state, partly in the hope of doing well with the north-east's relatively moderate voters.

Exit polls in the three biggest states, Connecticut, Maryland and Pennsylvania, offered some familiar explanations for Mr Trump's success. It was above all fuelled by resentment of the ways in which America's economy is changing and of the political-business elite presiding over it; more than four in ten Republican voters said Wall Street hurts the economy and Mr Trump won two-thirds of them. Yet the polls also suggested deepening support for Mr Trump, who has now won 26 of the 41 states that have voted, across the Republican electorate. He beat Mr Cruz handsomely among evangelicals and strong conservatives, the Texan's biggest fans. Given that he also outperformed his poll ratings in every state—reversing a former habit of underperformance—the impression was of a Republican electorate that has, rather sud-

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denly, decided to plump for Trump.

There are three possible explanations for this change. One is that voters are unimpressed by the technical hurdles his rivals are trying to pile in Mr Trump's path. Thus, for example, Mr Cruz's, impressive effort to insert his supporters onto the lists of delegates that each state will send to the Republican National Convention in July. If Mr Trump failed to win the nomination on a first ballot there, most would be free to vote for the candidate of their choice in subsequent votes, potentially handing Mr Cruz a big advantage. There is nothing underhand about that, yet of course Mr Trump says there is, and opinion polls suggest many might sympathise with him. Most Republicans say their ticket should go to whoever wins the most delegates.

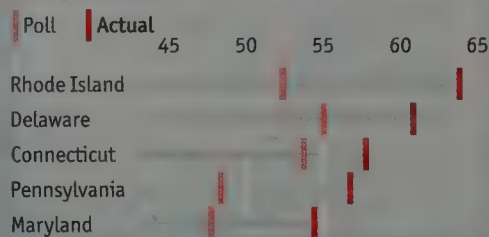
A second possible explanation is that Republican voters who strongly disapprove of Mr Trump—around a third of the total—are giving up. The fact that turnout was down on early Republican primaries points to that. A third, related, reason for the pro-Trump wave is that the growing likelihood of Mr Trump as the candidate has sanitised him a bit. Thus, he did better than usual with late deciders—such as Anthony Venditti. “I went in 75% sure I was voting for Cruz,” said the 27-year-old engineer, outside a polling station in Pittsburgh, Pennsylvania. “But I went for Trump because he has the best chance of bringing back manufacturing and jobs.”

The wave could fade. The north-eastern states are packed with the working-class whites who love Mr Trump's protectionist message best. Indiana, which has 57 delegates available, most of whom the tycoon must win, is more conservative and religious, making it more propitious for Mr Cruz. He is running Mr Trump fairly close; polls put him on 33% to Mr Trump's 39%. And on April 24th he and Mr Kasich announced a non-aggression pact, under ►►

Poll vault

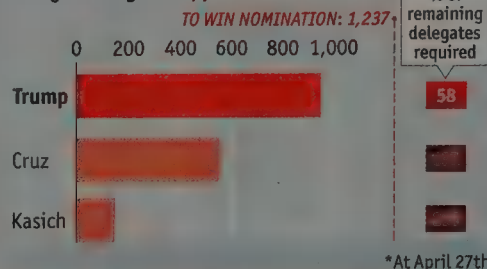
Republican presidential primaries, 2016

Voting for Trump, %



Sources: RealClearPolitics; AP

Pledged delegate support*



which the governor, who is at 19%, will stop campaigning in Indiana. If more of his supporters were to peel away to Mr Cruz than to Mr Trump, the Texan could win. That is tough to predict; Mr Kasich's followers dislike Mr Cruz's caustic conservatism almost as much as Mr Trump's reckless populism. But it may be their main hope of denying the tycoon the ticket.

In his victory speech—naturally delivered in Trump Tower, in Manhattan—Mr Trump appeared to be readying himself for Mrs Clinton; albeit not in the measured, sophisticated way his advisers have briefed Republican elders to expect. Mr Trump just piled in. “The only card she has is the women’s card,” he sneered—“and the beautiful thing is women don’t like her”. Yet they like him much less—70% of women have a poor opinion of Mr Trump—and this did

not seem a good way to woo them.

Mrs Clinton, who won all the north-eastern states except Rhode Island, stretching her lead over Senator Bernie Sanders above 300 elected delegates, was also in general election mode. In her victory speech—delivered in Philadelphia, in recognition of Pennsylvania’s potential importance as a swing state—she beseeched Democrats, independents and even “thoughtful Republicans” to rally to her standard. It would have seemed unimaginable only recently, but the way things are going a few of them might. Even in the most surprising quarters: this week Charles Koch, a billionaire industrialist, libertarian and mega-funder of conservative causes, said it was “possible” Mrs Clinton would make a better president than whoever the Republicans put up. ■

The great Republican delegate wrangle**Sectional preferences**

INDIANAPOLIS

Two kinds of contest are going on within the Republican primaries

IF THE GOP does not nominate Donald Trump, the delegates need to be cleansed,” says an e-mail received a few days ago by Craig Dunn, a Republican delegate for Indiana’s fourth congressional district. It was one of many e-mails, calls and messages posted on the local Republican website to Mr Dunn from supporters of Donald Trump, the Republican front-runner, calling him a traitor and employing some colourful expletives. Mr Dunn had dared to say in an interview with *Politico*, a news organisation, that he would not support Mr Trump unless Satan were one vote away from the nomination. In that case, said Mr Dunn, he would “consider voting for Trump if he was the only alternative”.

The fight for Republican delegates has become fevered and rather nasty as Mr Trump scrambles to shore up support from 1,237 “bound” delegates, or 50% plus one vote, before the Republican convention in Cleveland, Ohio, in July. According to state

party rules, a bound delegate assigned to Mr Trump in a primary election is obliged to vote for him in the convention’s first round of voting. Even Mr Dunn says that he would vote for Mr Trump if the property tycoon wins in his congressional district in Indiana’s primaries on May 3rd.

Mr Trump’s main rival, Ted Cruz, a Texan senator, no longer has a chance of reaching the magic number of 1,237 bound delegates, so he is focusing all his energy on stopping Mr Trump from reaching that threshold, in which case convention delegates continue to vote in at least two and possibly more rounds in a so-called contested convention. That notion riles Mr Trump. “The whole delegate system is a sham,” he told *Fox News* on April 26th. He has also called it “rigged” and “crooked” and accused his detractors of bribing delegates with trips and other perks. There is a certain amount of theatre in this. Anything that allows Mr Trump to claim outsider sta-

tus is good for business; anything that makes his rivals look spooked or weak is doubly so. But his attacks bother party leaders, in particular in those states where Mr Trump lost and blamed his defeat on the delegate system.

“The process has been effective for decades,” says Pam Pollard, state party chairman of Oklahoma, where Mr Cruz won. “It’s a grass-root model driven by local party activists, not a sham,” says Mark Wynn, the Republican chairman in Indiana’s sixth congressional district. Many delegates are devoted volunteers and activists who have been loyal to the party for decades. Others say Mr Trump should have Googled the convention rules before he decided to run for president. They also point out that he has benefited from the system because his share of delegates thus far has exceeded his share of the vote.

The rules for the selection of convention delegates (2,472 for the Republicans and 4,765 for the Democrats) in a patchwork of more than 50 local elections, held in school gyms and other public buildings across the country, are not easy to follow. In many ways the primaries are hyper-democratic. In France, party apparatchiks choose their party’s presidential candidate without any input from voters. The same is true in Germany, where parties choose their candidate for the chancellorship. Yet in a contested convention, a few hundred delegates become kingmakers.

After the first round of voting—and even more so after the second and third rounds—most of them are free to vote for whomever they like, regardless of the wishes of primary voters. All eyes are now on Indiana, the only state to go to the polls on May 3rd and, apart from California, the most important of the states still to vote. The state is in the middle of two fierce fights on the Republican side. The first is a conventional one for votes. The second is for delegates whose loyalties can be relied on if they become unbound in Cleveland.

Mr Cruz criss-crossed Indiana on a bus in the second half of April. After stops in four different towns in Indiana on April 25th, he appeared at a rally on April 26th in a gym in Knightstown, a town of some 2,000 souls, where he attacked Mr Trump and Mrs Clinton in the same breath for their support of abortion choice, higher taxes and illegal immigrants (Mr Trump wants to send them back to wherever they came from, he said, and then let them in again). Mr Trump visited Indiana only once during the campaign, but on April 27th he flew to Indianapolis for a rally with Bob Knight, a popular basketball coach fond of throwing chairs in fits of temper.

Apart from trying to scoop up as many of the remaining candidates as possible, Mr Cruz wants to get delegates assigned to vote for Mr Trump on his side in a potential second ballot, especially in states he lost. ►►

CuriosityRetreats

DIV + DEEP

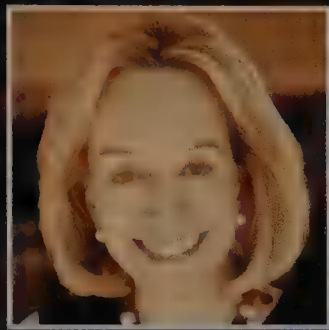
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► Indiana's delegate slate includes many party activists who are unlikely to vote for Mr Trump, unless they are required to, though some of them back Mr Kasich rather than Mr Cruz. "We will be an extended pit stop on the road to the second ballot," predicts Pete Seat, a political consultant. Mr Seat thinks that Indiana delegates would support Mr Kasich on the second ballot because he is the most electable and the likeliest of the three to beat Mrs Clinton. (However, Mr Kasich can compete at the convention only if the Republican leadership changes its rule 40(b), which stipulates that to win the nomination a candidate must have won a majority of delegates in at least eight states.)

Jeff Cardwell, Indiana's Republican state chairman, denies that whom they support was a criterion in the selection of delegates. He says delegates had to be Republicans "in good standing" and be deeply involved in party activities to make the cut. He points out that Rex Early, the chairman of Mr Trump's campaign in Indiana, is one of the 57 delegates. Mr Cardwell rejoices in all the attention Indiana is getting this year. "Indiana could be a game changer," he says, a role Hoosiers are unused to.

Until May 3rd many of Indiana's delegates will be under lots of pressure from Trump supporters, who are inundating them with e-mails, phone calls and more. "The Trump camp started very late trying to win over delegates," says John Hammond, one of Indiana's two representatives on the Republican National Committee. What Mr Trump's supporters lost in time they are now trying to make up with intensity. "We need a refresher course in civics," sighs Mr Hammond. With only a couple of months left until the Republican convention, it may be a little late for that. ■

The labour market

The force awakens

Labour-force participation is rising again, at last

ACCORDING to Donald Trump, America's "real" unemployment rate is higher than 40%. The fact hiding behind this Trumpism is that America's labour-force-participation rate—the fraction of the population either in a job, or looking for one—is only 63%. The Donald is mixing up his economic barometers. But America's low participation rate has captivated economists almost as much as unemployment, ever since participation tumbled dramatically after the financial crisis. Recently, it has begun a belated recovery.

In early 2007, 66% of Americans were in the labour force. After recession struck, participation tumbled, falling to 64% by

2012. By September 2015 it had hit 62.4%—its lowest since 1977, when less than half of women worked. Since that low, however, participation has come back into fashion: 2.4m Americans have joined the labour force in the last six months, pushing the rate back up by 0.6 percentage points. As a result, despite the simmering jobs market—the economy created 215,000 net new jobs in March—unemployment is fairly steady. It was 5.1% in September, and is now 5%.

Both the big fall in participation since the crisis, and the recent rally, are mysterious. There are three potential explanations for the long-term decline. The first, and most obvious, is demography. The financial crisis coincided almost exactly with the oldest among the baby-boom generation reaching the age of eligibility for Social Security (pension) benefits. But a retirement surge cannot fully account for the sharpness of the fall. In 2007 the Bureau of Labour Statistics, demographic projections in hand, forecast a much smaller decline in participation, to only 65.5% in 2016.

The recession may have pushed the de- ►►



The campaigns

Heard on the trail



Game of thrones

"People go. They use the bathroom that they feel is appropriate, [and] there has been so little trouble."

Donald Trump shows a remarkable lack of concern over transgender bathrooms

Rocky Horror Show

"So lemme make things real simple: even if Donald Trump dressed up as Hillary Clinton, he shouldn't be using the girls' restroom."

Ted Cruz supports "bathroom bills"

Hooking up

"There's no magic formula this year. It's kind of like computer dating gone bad."

Ed Rollins, a veteran Republican consultant, on finding a vice-presidential candidate. Washington Post

Live from Minnesota

"[Republicans'] best hope of stopping Donald Trump is a guy who's the love child of Joe McCarthy and Dracula."

Al Franken, the Democratic junior senator, returns to his comic roots. MinnPost

Hell freezes over

"It's possible."

Billionaire right-wing political activist and left-wing bogeyman, Charles Koch, thinks that Hillary Clinton may be the best available president. ABC News

Fast and furious

"Characterising Donald Trump as a type of car or animal resulted in some fascinating descriptions...women depicted him as a Porsche, a Ferrari, a muscle car, a boxer who stands his ground, a bulldog, an Escalade, a lion (fierce and king of the jungle) and as an unpredictable cat."

A focus group of "Walmart moms" on the Republican front-runner. Washington Post

Sleeping with the enemy

"Collaborator!"

A Trump supporter in Philadelphia berates John Kasich for his mutual non-aggression pact with Ted Cruz. Cathleen Decker of the LA Times

Burning down the house

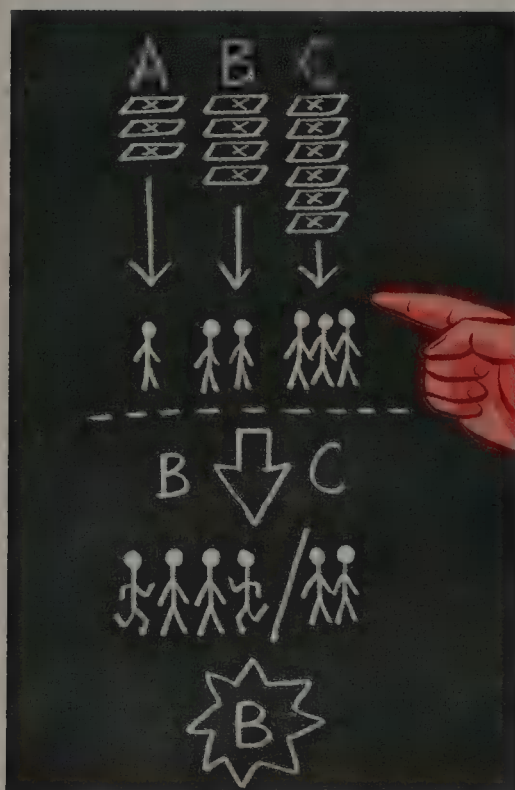
"Sometimes you can't fix it. Sometimes you can just take a seven-alarm fire and just make it a four-alarm fire. It's still burning, but it's not as bad as it was."

Reince Priebus, head of the Republican National Committee, is trying to remain calm about the convention. CNN

Fear Factor

"Lock your doors, folks. Okay. Lock your doors...Who knows, maybe it's ISIS."

Mr Trump, campaigning in Rhode Island, warns locals about the Syrian refugees who have been resettled there. Sopan Deb, CBS News

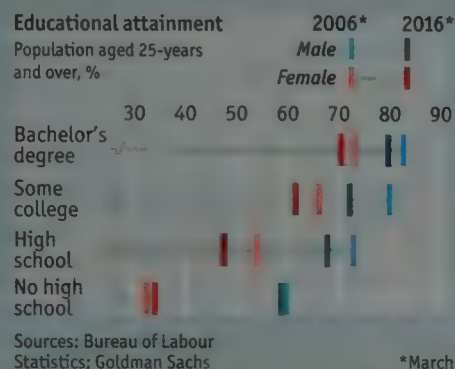
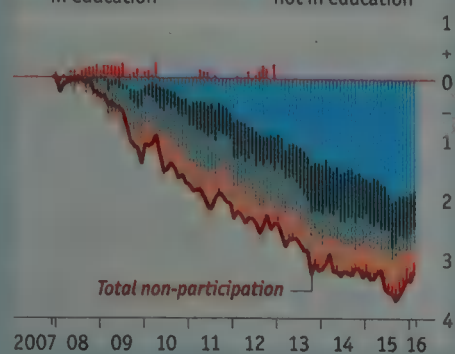


It's the taking part that counts

United States labour force

Contribution to change in participation rate since December 2007, percentage points

Retired Disabled Discouraged
Don't want a job, in education Don't want a job, not in education



► demographic trend by forcing oldies who lost their jobs to retire sooner (despite the fact that falling stock prices damage retirement nest-eggs). In response to a Federal Reserve survey in 2013, 15% of retired folk said they stopped work earlier than planned because of the recession, three times as many as said that the downturn had forced them to slog for longer. This phenomenon is uniquely American: economists at Goldman Sachs recently examined 19 rich countries, and found that only in America has the participation rate of 55- to 64-year-olds fallen since 2008. In total, the bank reckons, retirement accounts for 58% of the fall in participation since 2008 (see chart).

The second explanation is incentives. Higher returns to education may have encouraged more people into (or back into) school: 10% of the workers who have gone missing can be found in the library. The same trend may be pushing out less-educated workers: the biggest falls in participation have been among male college dropouts and female high-school graduates.

Some conservatives blame low participation on growing welfare rolls. During the recession, with unemployment soaring, nearly every state suspended work requirements tied to the supplemental nutrition-assistance programme, better known as food stamps. Under the work requirements, which were introduced in 1996, able-bodied adults without children cannot receive food stamps while unemployed for more than three months in any three-year period. With this rule mostly

Suicide

The saddest trend

Suicide rates are rising in America, and in other rich countries

EACH year the Centres for Disease Control and Prevention (CDC), a federal agency, adds up the causes of death noted on coroners' certificates. It is the most melancholy of lists, from heart disease at the top to scarlet fever at the bottom. Suicide usually hovers around number ten, prominent but not exactly startling. On April 22nd the CDC sorted the numbers another way, picking out the suicides and examining trends in self-destruction. Viewed this way, the data are alarming: America is in the grip of a sustained raise in the suicide rate across all age groups and for both sexes. From 1999 to 2014, the suicide rate rose by 24%. The numbers are adjusted to take account of ageing. Men shoot themselves; women take poison. There has been a rise in suffocation and strangulation.

The finding fits with other melancholy ones from economists, including Anne Case and Angus Deaton, who have pointed to declining life-expectancy for poor whites, and Raj Chetty of Stanford and his colleagues at Harvard and elsewhere, who show how inequality correlates with illness. Everything seems to point in the same direction, to a national malaise, challenging the idea that America's story is one of inexorable progress. Yet some caution is order. The suicide rate declined steadily from 1986 until 2000, the date the CDC paper takes as its starting point. What is happening in America is a return to the mid-1980s rather than a leap into some lethal, dystopian future.

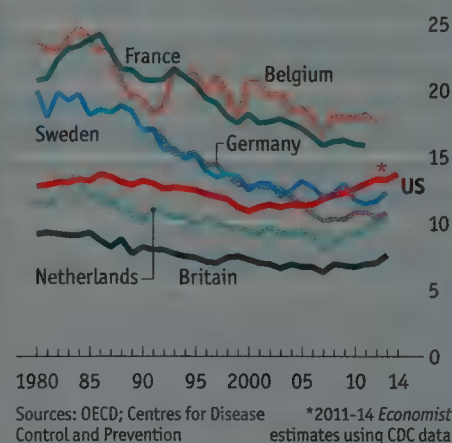
It is also worth noting that a similar pattern can be seen some other countries. Using a database from the OECD, and filling in a few gaps from other sources, we have compared America's suicide rates with those elsewhere. The OECD data do not correspond exactly with those produced by the CDC because of the different ways their respective statisticians adjust the raw numbers for

ageing. But they show that America's suicide rate comes out considerably lower than those of France or Belgium. And the recent uptick is mirrored in Britain and the Netherlands, among other countries.

The rise since 2007, when the financial crisis got under way, adds weight to the idea that suicide studies are really just a branch of macroeconomics. But within the CDC numbers there is enough to suggest that the causes of the increase are more complicated than that. When plotted on a map, what researchers refer to as a "suicide corridor" runs from Montana in the north to New Mexico in the south, with Nevada to the west and Colorado to the east. The best explanation for this seems to lie in demography. Native Americans and non-Hispanic whites both have a higher propensity for suicide than other ethnic groups. The mountain West has plenty of both. The desert has also become a popular retirement destination for old bones. Surveyed by age, the group at the highest risk of committing suicide is not reckless young men but males aged 75 or over.

Trails of despair

Suicide rate per 100,000 population

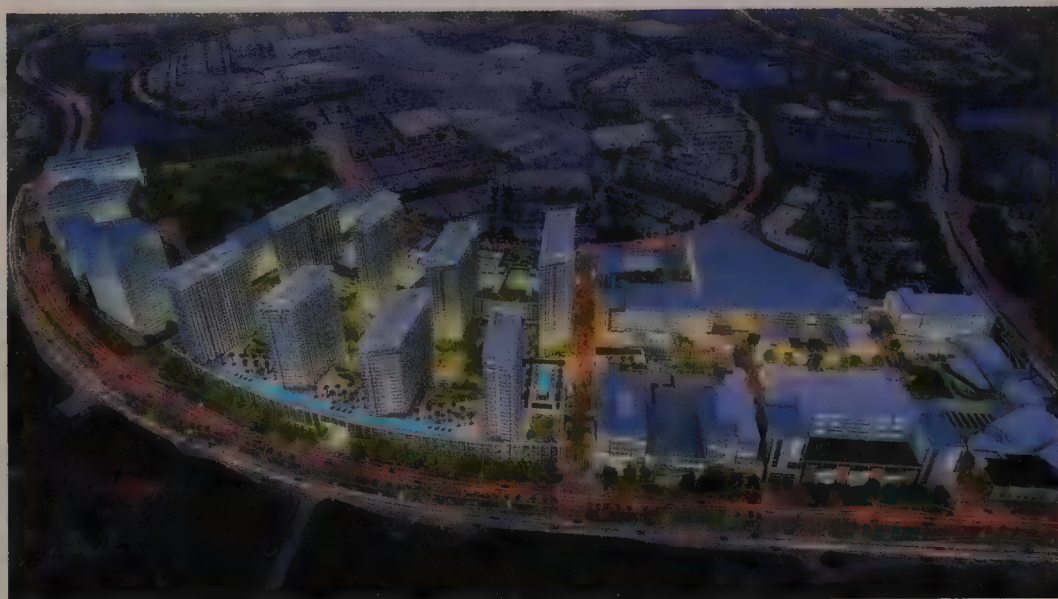


suspended, the proportion of the population claiming food stamps swelled from 9% at the end of 2007 to 15% by the end of 2012.

Work requirements are now back in force in more than 40 states. Twenty-two of these reintroduced them in January. Could that have driven Americans back to work? It looks unlikely. In states which brought back work requirements, claims for food stamps fell by a weighted average of 0.4% of the working-age population. In states with no such change, food-stamps claims fell by only half as much. Yet in both

groups of states the participation rate rose by the same amount—a weighted average of half a percentage point—between December and March. That suggests something else is going on.

The final explanation is that much of the fall in participation was simply the result of a weak economy. Plentiful jobs, and rising real wages, are now tempting Americans back into work. If this is right, forecasting how far the trend has to run is a crucial challenge for the Fed as it decides when next to raise interest rates (see page 69). ■



The future of cities

Ersatz urbanism

MIAMI

Instant, ready-made downtowns bulldoze the distinction between city and suburb

AMERICAN suburbs don't come much more ordinary than Sunrise. In street after street, modest single-storey houses sit behind grass yards dotted with bougainvillea bushes and palm trees. Each house has a mailbox on a pole, with a little red flag to signal when it is full. Sunrise is so similar to other Florida suburbs that when it was built, in the 1960s, the developer lured visitors with a gimmick: an upside-down house, with upside-down plants and an upside-down car in the driveway.

What is being built now seems odder even than that. On the edge of Sunrise, next to the Florida Everglades, eight modernist blocks of flats (the first of them 28 stories high) are to rise, along with offices, car parks and a shopping street including restaurants and a cinema. Erick Collazo of Metropica Holdings, the developer, says the idea is to build a downtown in suburbia. Metropica, as the 26-hectare complex is called, will not really be a downtown. Because of what it suggests about the future of cities and suburbs, it will be more interesting than that.

Florida rivals southern California as the rich world's most inventive, exuberant urban laboratory. The architectural movement known as new urbanism took off there, producing two settlements that tried to bottle the essence of small-town America: Seaside (the setting for "The Truman Show") and Celebration, built by the Walt Disney Company. If you want to see out your last years playing golf there is nowhere better: one huge retirement community, known as The Villages, has 48 courses.

Today the fad in south Florida is not

golf villages or retro towns but ready-made city centres. Half an hour's drive south of Sunrise, another Metropica-like development, City Place Doral, is under construction. Two others with even taller towers, Miami Worldcentre and Brickell City Centre, are going up in central Miami. A huge development called SoLe Mia will rise in north Miami. All will combine "walkable" shopping streets, offices and homes—mostly two- and three-bedroom flats in towers. Similar developments have appeared in other American cities, and beyond. But Florida is being overrun.

Builders call these developments "mixed-use", a term that fails to capture what they are up to. The idea of combining flats, offices and shops even in a single building is not new: look at an old New York district like Chelsea. Metropica and its kin try to create urban cores in places that lack them. Whereas new urbanist settlements often promote a small-town ideal, these sell big-city life, which is why they have words like "metro", "city" and "centre" in their names. The salesmen claim that residents will be able to live, work and be entertained in a single district.

Ersatz city centres are multiplying now partly because it takes about this long after a financial crisis to begin a big project. Another reason is the rising price of land. Jeffrey Soffer of Turnberry Associates, a big Miami developer, points out that south Florida has almost run out of room to sprawl. Pinched between the Everglades in the west and the Atlantic in the east, it must go up. And although some cities, including Miami, are probably building too many

high-rise flats, demand is fairly strong. Foreigners want to own them (most of the people buying flats in Metropica are Latin Americans) and young Americans want to rent them, partly because they find it hard to get mortgages to buy family homes. The towers are growing bigger: 48% of flats constructed in America in 2014 were in buildings with at least 50 units.

Mixed-use development is also being pushed by politicians. They have tweaked the zoning rules that normally separate homes, offices and shops, and allowed taller buildings: Miami approved a more relaxed zoning code in 2009. Rules that require a minimum number of parking spaces to be constructed for every new restaurant table or every 100 square metres of office may also be softened in mixed-use developments. The developers claim, reasonably, that the same parking space can be used by a worker during the day and a diner at night.

As it has done before, Florida is pioneering a new kind of city. Robert Bruegmann, an authority on urban sprawl at the University of Illinois, reckons that American city centres and suburbs are coming to resemble one another. Suburbs are growing denser and more diverse; urban cores are greener, cleaner and often less densely populated than they were (even go-go Manhattan has two-thirds as many people as it did a century ago). Ersatz city centres, which can be built in low-rise suburbs like Sunrise or in built-up areas, bulldoze the distinction further. South Florida is becoming a landscape of scattered centres—sprawl with bumps.

But creating the appearance of urbanity is not the same as making a city. Cities are supposed to be cosmopolitan and surprising; they ought to change in unpredictable ways. Mixed-use developments, by contrast, are fully-formed when they are built—and are too costly for the poor. They are not supposed to be diverse. John Hitchcox of Yoo, a design firm that has worked on Metropica and many other projects, says that mixed-use developments aim to create communities of like-minded people. Though they look like cities, they are supposed to feel like villages.

In fact, the low-rise 1960s suburb where Metropica is being built is already full of cosmopolitan surprise. Behind those monotonous lawns lives a diverse population: one-third of the 88,000 people who live in Sunrise are black and one-quarter are Hispanic. The strip malls are filled with esoteric businesses—a South Indian vegetarian restaurant run by Palestinians, a Vietnamese café, a Dominican hairdresser, even a British shop selling Boddingtons beer and scones. Walkable they are not. But by providing places for immigrants to get ahead, the cheap, ugly, car-oriented strip malls of suburban Florida are already doing what cities are supposed to do. ■

Lexington | When economists turn to crime

How cost-benefit analysis might save America's criminal-justice system



IT TOOK decades for politics—that messy, flawed business of gauging the public mood, haggling with interest groups and turning out votes—to build America's prison system: a behemoth of staggering size and cost, unlike anything else in the developed world. What chance is there that the monster can be tamed by the dry, abacus-clicking discipline of economics?

A non-trivial chance is the surprising answer, judging by a bipartisan conference of economists and policy wonks at the White House on April 25th, co-hosted by the conservative American Enterprise Institute and the broadly progressive Brennan Centre for Justice. The meeting launched a report into a system that, after decades of relentless growth, holds over 20% of the world's prisoners, though America is home to less than 5% of the global population. The report's dry title, "Economic Perspectives on Incarceration and the Criminal Justice System", should not deceive. Written by the White House Council of Economic Advisers (CEA), an in-house think-tank that has advised presidents since Harry Truman, it is a 79-page catalogue of unintended consequences, failed policies and heartbreaking waste, counted in the tens of billions of dollars and, more important, in human lives.

By tradition, American journalists refer to really startling facts as "Hey, Martha!" moments, imagining a newspaper reader exclaiming to a breakfast companion. In Britain, such facts are "marmalade droppers". Such moments fill the new report. America spends \$80 billion a year locking up 2.2m people, reflecting an incarceration rate that has climbed remorselessly to more than four times the world average, even as violent crime rates fell sharply. Between 1980 and 2014 the proportion of people behind bars more than tripled, with especially sharp rises among black and Hispanic men. Much growth was driven by "tough on crime" laws passed in the 1980s and 1990s, which sent even non-violent drug offenders to jail. If past trends continue, one in three black men born in 2001 can expect to serve time at some point.

Every year, 600,000 people are released from American prisons. More than half of all prisoners have mental health problems, while about two-thirds did not complete high school. Once out, ex-cons join about 70m Americans with criminal records, a status which in several states will deny them public housing and the right to vote, and legally bar them from occupations

which require a licence, such as hair-cutting or plumbing. Recidivism rates are dire: one study following people released from state prisons found that, within five years, more than half were back behind bars.

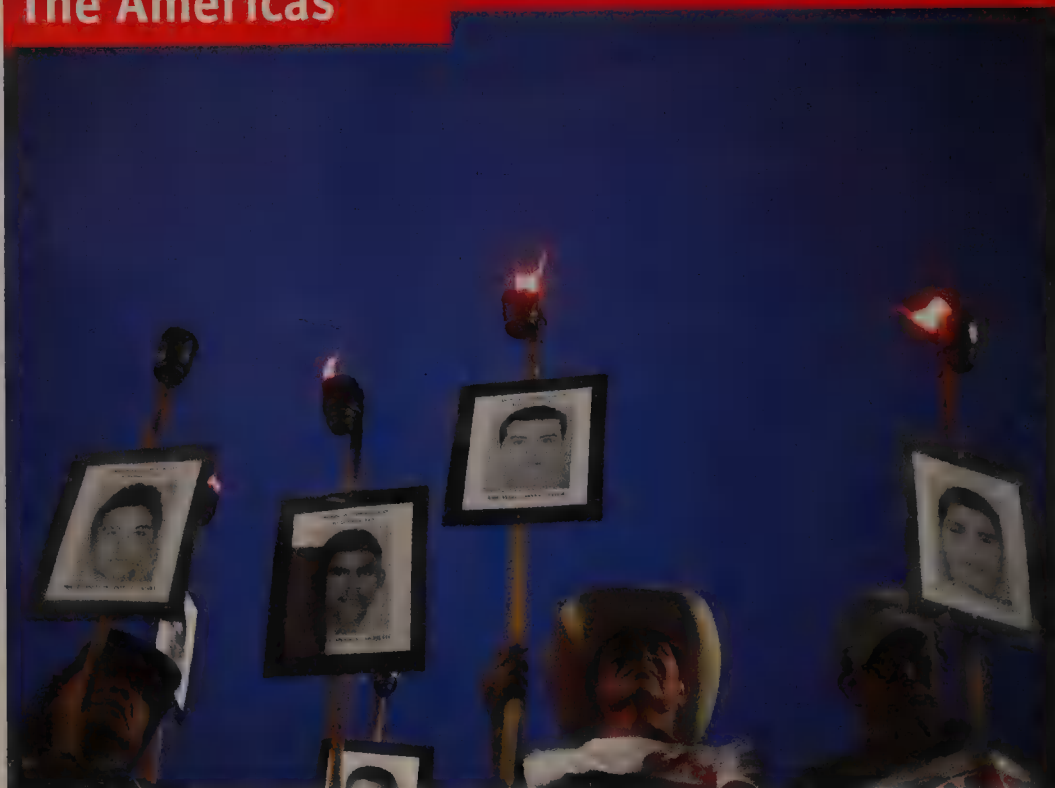
Small wonder that politicians on both the left and right are increasingly asking whether today's system is humane or just. Protesters have challenged the Democratic presidential hopeful, Hillary Clinton, to disown a crime law passed in 1994 by her husband, Bill Clinton, which included billions of dollars for new prisons and tougher sentencing rules. She has partially obliged, calling for an end to today's "era of mass incarceration". Congress is weighing bipartisan bills to loosen rigid sentencing laws. But for all the talk, politicians seem stuck. In Congress, conservatives vow to resist bills that might release violent offenders. Leftists demand radical change to a system they call inherently racist.

Enter the economists. The CEA report confines itself, explicitly, to questions of costs and benefits: whether locking so many people up for so long is an efficient way to reduce crime. Its conclusion is a resounding no. Incarceration does prevent some crimes from being committed, it concedes: a big California study from 2013 suggested that each extra year in jail typically avoided one or two property crimes, with the effects strongest for motor-vehicle theft. But hefty prison spells turn out to be a costly and clumsy way to deter offenders. Explaining this finding, the CEA's chairman, Jason Furman, cited the law of diminishing marginal benefits. Once a country's prison population is large, additional prisoners are more likely to be low-risk offenders. Indeed several studies suggest that harsher sentences may be counter-productive, for instance as young offenders emerge hardened by juvenile jails. Other research points to better policing and an ageing population as likelier causes of lower crime rates.

Misbehavioural economics

Two former directors of the Congressional Budget Office spoke at the White House meeting. Douglas Holtz-Eakin, a Republican who served on George W. Bush's CEA, called criminal-justice reform a "rare public-policy moment" that offers both parties a chance to save taxpayers money, help more people into the labour force, strengthen families and reduce poverty without sacrificing public safety. Peter Orszag, a Democrat who headed the Office of Management and Budget in Barack Obama's first term, called the evidence "compelling" that, to deter crime, the severity of a possible punishment matters much less than the certainty that it will be inflicted. Alas, politicians have poured resources into incarceration rather than more cost-effective tools, such as hiring more police and directing them to crime hotspots (America employs two-and-a-half times more corrections officers per person than the global average, but 30% fewer police). The vast majority of burglaries (85%) are never cleared up, while fewer than half of violent crimes lead to arrests.

One strength of this wonkish, follow-the-numbers approach is that it avoids the political challenge faced by reformers: the fact that many voters yearn to feel safe from crime, and do not want to be told that this is a wicked or selfish ambition. The CEA report duly calculates the cost to society from crime, and finds that it is large. But it then shows that today's policies are a horribly wasteful way of reducing that scourge. Scare-mongering headlines, followed by pandering and guesswork by politicians, have driven criminal-justice policy for too long. Enough marmalade-dropping panic: time to give cost-benefit analysis a go. ■



Murder in Mexico

The great mystery

MEXICO CITY

A grisly crime and a possible cover-up remind Mexicans of what they most dislike about their government

EVEN the official story is shocking. In September 2014 a group of student teachers from Ayotzinapa, in the south-western state of Guerrero, decided to commandeered some buses in the nearby town of Iguala. They wanted to go to a rally in Mexico City, and it is common for students in this part of Mexico to take buses for such things. They usually return them.

Forty-three of those students disappeared, and are presumed dead. The mayor of Iguala and his wife were angry with them for having disrupted a political event, the federal government says, and ordered the local police to hand them over to a drug gang, the Guerreros Unidos. The gangsters mistook the students for members of a rival gang. They killed them, burned their bodies at a rubbish dump and tossed the remains in a river.

Or so the government insists. The truth may be worse. Under pressure from the families of the missing students, the government invited foreign experts, convened by the Inter-American Commission on Human Rights, to investigate. The group, known by its Spanish initials GIEI, released a 608-page report on April 24th.

They found no evidence that the students had been burned at the rubbish dump at the time the official account said they had been. And they have suggested that one of the buses was perhaps being used to move heroin from Guerrero—Mexi-

co's main heroin-producing state—to Chicago. The students may have been killed because they inadvertently made off with millions of dollars' worth of drugs.

Even the details on which both sides agree are confusing. On September 26th, at around 9.30pm, about 100 students left Iguala in five buses. Three of the buses came under fire from local police. The students in one of the buses were taken away by the police and have not been seen since. The other two buses, which took a different route, were also stopped. Again, the students on one were taken away and have not been seen since. The others, who had been alerted to what was happening, escaped into the darkness. The bodies of three bystanders and three students were later found. One of the students had his eyes gouged out and the skin on his face was missing.

Not the whole truth

The mayor and his wife are in custody, as are 73 municipal policemen and 50 gang members. The government's version of events relies partly on confessions from gangsters. The GIEI alleges that 17 of the gang members were tortured, citing photographs showing their bodies increasingly battered as the interrogations progressed. The government says it is investigating this claim—but it is also sending the foreign experts packing.

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The GIEI complains that the government obstructed its investigation by not allowing it to question soldiers from the battalion based in Iguala. The country's National Human Rights Commission says it has heard from witnesses who say that federal police officers were present when students were bundled off one bus and into local patrol cars, and did not interfere. The government denies this. The GIEI asks whether the army also failed to act when it could have.

No one knows what really happened, but the whole country is speculating. Who, Mexicans ask, is the government protecting? The army and federal police, many suspect. Mexicans are even more appalled by the behaviour of local-level officials. The saga reminds them that in some parts of their country organised crime has infiltrated local politics so thoroughly that the two are hard to tell apart. It also reminds them that crimes in Mexico are rarely punished: only one in 100 leads to a conviction.

For the president, Enrique Peña Nieto, it has been a public-relations disaster. At first he seemed aloof: it took him a month to meet the victims' families and 17 months to visit Iguala. Now many Mexicans question his willingness to confront the culture of corruption that allows violence to thrive. "The rest of his presidency will be plagued by this," says Jorge Castañeda, a former foreign minister.

Mr Peña's approval rating is a woeful 30%, in part because of allegations of sleaze. The boss of a government contractor that built the president's wife a house was revealed in the Panama papers to have moved \$100m through an offshore centre. And Iguala-like local tragedies keep happening. Five people vanished earlier this year in the eastern state of Veracruz after their arrest by state police. Video of a sus- ►►

pect being tortured with a plastic bag over her head by two soldiers and a federal police officer recently went viral on social media. "Mexico is awakening," says Viridiana Rios of the Wilson Centre, a think-tank in Washington. A bigger and more assertive middle class "is no longer prepared to put up with corruption and impunity", she says. Congress will soon consider a package of anti-corruption bills.

Mr Peña, who has pushed through reforms of energy and telecoms, still has the capacity to surprise. Last week he admitted that the drug war wasn't going well. He proposed legalising medical marijuana and decriminalising the possession of 28 grams or less of recreational pot. This could start to de-escalate the drug war, removing harmless offenders from Mexico's jam-packed prisons and focusing law enforcement on the crimes that terrify ordinary citizens, like the killing of the student teachers of Ayotzinapa. But establishing the rule of law in Mexico will take years. ■

Innovation in Canada

More particle than wave

WATERLOO, ONTARIO

A geeky prime minister wants to make the country more inventive

ASKED by a journalist in April about Canada's role in fighting Islamic State, Justin Trudeau, the prime minister, came back with a pithy lecture on quantum computing. "The uncertainty around quantum states," he explained, lets quantum computers encode much more information than the conventional binary sort can. This detour into geekdom seemed natural at the Perimeter Institute for Theoretical Physics, which Mr Trudeau was visiting to proclaim his enthusiasm for basic research. The video of the impromptu lecture went viral, adding to the glamour already radiated by the snowboarding, cannabis-legalising, refugee-embracing prime minister. The assembled physicists duly cheered; Mr Trudeau then answered the question.

He has given boffins much to celebrate. Unlike his Conservative predecessor, Stephen Harper, who governed until last November, Mr Trudeau shows no inclination to muzzle politically inconvenient research. The Liberal government's first budget, presented in March, increases federal spending on innovation clusters, university labs and research bodies, including the Perimeter Institute. In naming his cabinet Mr Trudeau rechristened the industry ministry: it is now the ministry of innovation, science and economic development.

All this has more to do with economic necessity than prime ministerial nerdi-

Dim northern lights

Research and development spending 2014 or latest, % of GDP



ness. For a decade much of Canada's growth has come from natural resources, especially oil and gas. That allowed Canada to ignore its weaknesses as a producer of knowledge-intensive goods and services. In the World Economic Forum's ranking of countries' performance in innovation, Canada comes a dispiriting 22nd. As a share of GDP it has the lowest level of "technology exchange"—money spent on or earned from patents, designs and other forms of know-how—among the 15 countries tracked by the Conference Board of Canada, a think-tank. "The resource super-cycle covered up a lot of issues around innovation and productivity," says Dan Muzyka, the Conference Board's chief. The end of the commodity boom caused a six-month recession last year; in 2016 growth is expected to be a feeble 1%. Without more innovation, Canada is unlikely to grow much faster than that for long.

Canada does not lack scientists or good universities. Nor has its government been stingy. Public spending on research and development is higher as a share of GDP than in Europe and the United States (see chart). Where Canada falls short is in transforming ideas into marketable products. It produces relatively few patents. R&D spending by business has been declining for the past 15 years as a share of GDP; just 2.2% of companies are engaged in innovation, according to Dan Breznitz of the Innovation Policy Lab at the University of Toronto.

A report in 2013 on Canada's innovation deficits by the Council of Canadian Academies, a think-tank, pointed out that the country's managers have less education than executives in the United States and that government procurement policies do little to create markets for new technologies. Venture capital, the financial lifeblood of technology companies, is puny. Investment by Canadian venture-capital firms was C\$2.6 billion (\$1.9 billion) last year. That is 11% more than in 2014 but less than half as a share of GDP than in the United States. Canadian venture-capital funds also lack the expertise of their Amer-

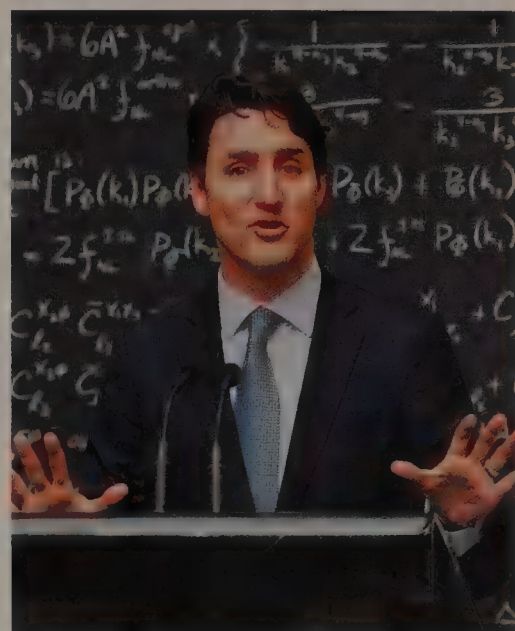
ican counterparts, and so are less able to help companies grow. Stockmarket valuations for Canadian technology firms are lower than in the United States. As a result, most do not see a future for themselves as independent companies. Three out of four tech entrepreneurs surveyed by PwC, a consultancy, said they plan to sell their businesses within six years.

That cautious strategy may owe something to an unambitious business culture, which is difficult to demonstrate but widely acknowledged. One Canadian techie who moved to California complains that "Canadians shoot for eighth place. They just want to make the playoffs."

The twin cities of Kitchener and Waterloo in Ontario embody both the strengths and weaknesses of Canadian innovation. The area's most famous firm is BlackBerry, a maker of once-cool communications devices. Today it employs 3,000 people in the region, compared with 11,000 at its peak. When BlackBerry lost the smartphone war to Apple "everyone assumed that Waterloo was toast", says Steve McCartney of Communitech, a non-profit group that helps tech companies.

Yet the area seems to be thriving. Some 15,000 companies, at least a third of them startups, are based in the corridor that runs from Waterloo to Toronto. They employ 200,000 people. Mike Lazaridis, a co-founder of BlackBerry (and of the Perimeter Institute) is a University of Waterloo dropout. OpenText, one of Canada's largest software companies, started as a university project to create an electronic database for the Oxford English Dictionary. Mr McCartney thinks Waterloo's tech firms benefit from traditions of collaboration established by the area's Mennonite groups.

Communitech, which seeks to encourage partnerships between technology companies and the university, is a prime example. It hosts "VeloCity Garage", where 120 startups work on such products as a ►►



Schrödinger's catnip

▶ self-driving floor scrubber and a device that helps doctors find veins. Kik, a messaging app with 275m users, started there.

Yet Waterloo is more an exporter of talent than a magnet for it. The best business plans come from University of Waterloo students, says Paul Graham, co-founder of Y-Combinator, a venture-capital fund in California. A typical software engineer in Waterloo makes two-thirds the salary of his California equivalent (though the cost of living is also lower). Pay is "60-70% of the decision to move", says Herman Law, a Waterloo graduate who works for a company that makes graphic-processing units

for electronic games. Professional opportunities are also much greater in California. "The tech sector in Canada just isn't as big," Mr Law says. It ends up serving as the "farm team" for Silicon Valley, Canadians grumble.

Navdeep Bains, the innovation minister, says he knows what the problems are. His plan for solving them will be ready by early next year. It is likely to include measures to encourage more collaboration among business, government and academia. Some analysts think innovation incentives should depend less on tax credits, the main source of public support for R&D.

Instead, the government should finance promising ventures. David Wolfe, of the Innovation Policy Lab, points out that Canada lacks a technology-development agency like the United States' DARPA or Israel's Office of the Chief Scientist. Insulated from political influence and pressure to produce quick results, such agencies can help commercialise technologies without spending much money, Mr Wolfe argues.

More self-confidence would also help, Mr Bains thinks. "We don't brag enough," he says. After Mr Trudeau's elegant turn at the lecture podium that could begin to change. ■

Bello | Fidel's last stand

The Cuban Communist Party blocks change

WHEN Fidel Castro made a brief appearance at the Cuban Communist Party's seventh congress on April 19th he was greeted with prolonged applause. "Well, let's move to another subject," he eventually said, his stentorian voice distorted by age. It was a joke. But he might as well have been turning the page on the historic visit to Havana by Barack Obama in March and the expectations it generated among Cubans of speedy changes. Having reminded his audience that he would soon turn 90 and that death comes to all, Fidel went on: "The ideas of Cuban communists will endure."

No serious student of Cuba imagined that Mr Obama's visit and his televised call for free elections would prompt overnight change. But the party congress proved to be a disappointment even by the cautious standards of the reforms that Raúl Castro, Fidel's slightly younger brother, has set in train since he took over as president in 2008.

The stasis was symbolised by the retention as second party secretary (behind only Raúl) of José Ramón Machado Ventura, an 85-year-old Stalinist ideological enforcer. Even officials had hinted that his powerful post might be passed to Miguel Díaz-Canel (56), the vice-president and Raúl's putative successor as president in 2018. Five new, youngish members joined the politburo, but none is known to be a reformer. Earlier hopes in Havana that the congress might approve an electoral reform and a bigger role for the rubber-stamp parliament were dashed.

Raúl Castro devoted part of his opening report to the congress to answering Mr Obama. Complaining of a "perverse strategy of political-ideological subversion"—a reference to Mr Obama's call for the empowerment of Cuba's small businesses and incipient civil society—Raúl



told the delegates that "we must reinforce anti-capitalist and anti-imperialist culture among ourselves." As for free elections, he twice insisted: "If they manage some day to fragment us, it would be the beginning of the end...of the revolution, socialism and national independence."

He insisted that the "updating" of Cuba's economy, to give a bigger role to the non-state sector and remove distortions and subsidies, would continue "without haste but without pause". In fact, the reforms have all but halted: of the 313 "guidelines" approved at the previous congress in 2011, only 21% have been fully implemented. The government recently reintroduced price caps on some foodstuffs. Days before the congress Omar Everleny Pérez, the most prominent of the reformist economists advising Raúl, was sacked from his post at the University of Havana. His alleged fault had been to share information with American academics. Mr Pérez has often called for the reforms to go faster.

One hypothesis is that Raúl can afford to move more slowly because of the injection of dollars from Mr Obama's loosening of restrictions on tourism, remittances and

investment. That may be true in the short term. But Raúl himself offered a withering critique of Cuba's underlying problems, criticising "out-of-date mentalities", "a complete lack of a sense of urgency" in implementing change and the "damaging effects of egalitarianism" in failing to reward work or initiative. He lamented the economy's inability to raise wages, which "are still unable to satisfy the basic needs of Cuban families".

So what explains Raúl's caution? He said that he had joked with American officials that "If we were to have two parties in Cuba, Fidel would head one and I the other." Joking apart, that rings true. Many of the Communist Party's 670,000 members are terrified of change, fearing the loss of security, perks and privileges. They see Mr Obama's opening to Cuba as an existential threat. Fidel is their reference point. He acts as a brake on reform.

What Raúl, in his neat and tidy way, is doing is to institutionalise the Cuban system, which long depended on Fidel's whims. He has set out a gradual process of transition to a post-Castro leadership. He is no liberal democrat: he praises the balance between state planning and the market in China and Vietnam. He has initiated both a "conceptualisation" of Cuba's socioeconomic model and a revision of the constitution to incorporate his reforms. These will be the Castro brothers' political testament.

But Raúl, unlike Fidel, is a realist. He knows that the system does not work and that the steps he has taken, especially the opening to the United States, have unleashed expectations of change and a better standard of living. Cuban society is evolving fast, even as the political leadership remains as stodgy as a government-supplied lunch. In the medium term, something will have to give.



An election in the Philippines

Siren song of the strongmen

DAGUPAN CITY

In a presidential race, a thuggish mayor leads the polls

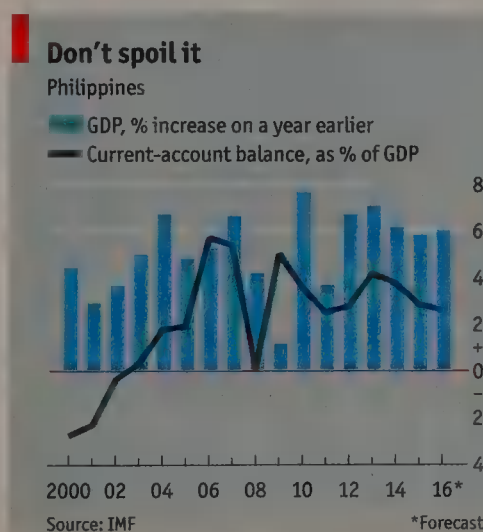
AT MID-AFTERNOON in Dagupan City, hundreds of people sweat and jostle politely in an arena awaiting Grace Poe, one of five candidates vying to be elected president of the Philippines on May 9th. When she arrives, the crowd surges to greet her. But during her well-rehearsed stump speech, attention wavers. People shift in their seats. Some leave. Afterwards, some clamour for T-shirts she tosses from a truck, but the overall response seems more dutiful than passionate.

Ms Poe needs to do better than this to win. As the vote approaches, she appears stuck in second place; she must energise her supporters and attract more. But she seems too much of a *trapo*—a pun on “traditional politician” and a Tagalog word meaning “old rag”—for an electorate in an anti-establishment mood. This year, the more experienced candidates are doing worse in the polls. Battling for third and fourth position are Jejomar Binay, the vice-president, and Mar Roxas, a former cabinet minister who has been endorsed by the outgoing president, Benigno Aquino. Behind them is Miriam Defensor Santiago, a former UN judge who has served in all three branches of government.

The front-runner is Rodrigo Duterte (pictured, in striped shirt) a vulgar, impolitic mayor who has never sought national office, is not backed by any big party and appears wilfully ignorant on policy. His simple line—the system is broken; I’ll fix things—resonates with millions of people.

From outside, and even in many parts

of Manila, the system hardly looks broken. The economy has grown steadily since 2000, and it has a healthy current-account surplus (see chart). The country’s credit rating has been raised, foreign cash has poured in and spending on infrastructure and social services has risen. Steady remittances from workers abroad, a booming service sector and low oil prices have helped keep demand humming. In the South China Sea the Philippines has stood up to China, contesting its expansive territorial claims. A peace deal ending decades of conflict in the southern region of Mindanao would have been signed, but for a botched raid in 2015 that killed 44 policemen. Even so, investment continues to pour into the underdeveloped island. As Japan, China and Thailand age, the Philip-



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ippines is enjoying its demographic bonus: the median age is 22.

But not everyone has benefited equally. Many rural families remain in deep poverty. Most of the good jobs generated during Mr Aquino's tenure are in cities. There are not enough for the millions joining the workforce each year. Urban poverty is rising. For all Mr Aquino's talk of “the straight path”, corruption is endemic. Infrastructure spending is concentrated around Manila, fuelling anger in regions such as Visayas, Mindanao and distant parts of Luzon.

Mr Duterte is well-positioned to capitalise on that resentment. He is a Visayan who for most of the past 25 years has been mayor of Davao, Mindanao's biggest city. He has strong support in both regions. His promise to fix a broken system has won over many in Manila who are frustrated by perpetual gridlock. He also taps into what Richard Javad Heydarian, a political analyst, calls “cacique democracy fatigue”: fading tolerance of a feudal politics long dominated by a few prominent families.

Because the *trapos* are polished and cautious, Mr Duterte's rough bluster gives him an air of authenticity. His emphasis on crime and the difficulties of urban living appeals to ordinary folk. But he has a darker side. He reportedly forced a tourist who violated Davao's anti-smoking ordinance to eat a cigarette butt. He called the pope “a son of a bitch” and, in speaking of an Australian missionary who had been raped and murdered during a prison riot, lamented that he had not been first in line to abuse her sexually. When American and Australian authorities tweeted their disgust at the “joke”, he dared both countries—allies the Philippines needs to counter Chinese assertiveness—to cut ties.

More worrying than Mr Duterte's boorishness is his contempt for democracy and the rule of law. He has spoken approvingly of the extrajudicial killing of suspected criminals, and sneers at Westerners who

“want to rehabilitate instead of just killing” criminals. He promises to end crime within six months of his election, and says his presidency is “going to be bloody. People will die.” People who fret over human rights, he said at an event on April 27th, are “cowards”. He praised Ferdinand Marcos, a longtime dictator who was overthrown in 1986, for his ability to “change the system”. (Mr Marcos’s son is near the top of the vice-presidential polls.)

To supporters, such talk shows that Mr Duterte will get things done. “Voters don’t care about process,” says Alan Peter Cayetano, Mr Duterte’s running mate: they just want things to work. Another Philippine politician once said something similar: “The times are too grave and the stakes too high for us to permit the customary concessions to traditional democratic processes.” That was Marcos declaring martial law in 1972. He went on to torture and kill thousands of his countrymen. ■

Nepal’s reconstruction

Still shaking

BUNGAMATI

Rebuilding Nepal after a devastating earthquake is taking far too long

LIFE should be busier for Ganeshman Shakya, a mason in Bungamati, a village in the Kathmandu valley. A year ago this week a 7.8-magnitude earthquake killed nearly 9,000 people and left millions of Nepalese, including his family, in need of new homes. But Mr Shakya, sitting idly on the front step of a corrugated-iron hut on the village’s outskirts, says that beyond patching up a few damaged buildings, there has been little new construction to keep him occupied. He had hoped to build a new place for his family within months of the quake. A patch of freshly-planted vegetables in front of the hut suggests he is betting it will be a longer haul.

Frustration is mounting in Nepal. Much of the \$4.1 billion pledged by international donors in the earthquake’s aftermath has yet to be spent. Politicians, many belonging to parties wedded (at least in theory) to various shades of Maoism, Leninism or Marxism, have hampered rather than helped. So has a chaotic bureaucracy. The Red Cross says 4m people remain in temporary shelter (as pictured).

Some of this is the result of corruption; a lot is simply cock-ups. Funding schemes designed to spur rebuilding have in fact delayed it. Just a few hundred people have received even the first disbursement of a promised grant of 200,000 Nepali rupees (\$2,000) to reconstruct their homes. Many worry that if they go ahead without first re-

ceiving the money, they may forfeit it. Confusion reigns as to whether those who get such a grant are eligible to receive a soft loan of 2.5m rupees promised by another aid programme. Delays in the granting of building permits mean even those with money to rebuild cannot get started.

Compounding the misery, economic growth has been weak. Nepal’s economy is deeply intertwined with that of its fast-growing Indian neighbour; much of the industrial base in the southern lowlands was hardly affected by the disaster. But growth is forecast to be 1.5% in this fiscal year. That is partly the result of constitutional amendments in September. Lowlanders with close ties to India, fearing the changes would reduce their political clout, protested by blockading the southern border. They had India’s tacit support.

The disruption ended at the turn of the year, but fuel remains scarce in parts of Nepal. In Kathmandu, petrol queues are often an hour long. Electricity is available only around half the time. Inflation is in double digits. Remittances from a steady flow of young men going to work overseas play a vital role in keeping the economy afloat.

On April 25th, the anniversary of the initial quake, protesters demanding faster reconstruction marched on government buildings. Foreign diplomats openly express annoyance at the delays. Few of them believe the government’s assurances that construction will get going in earnest before the rainy season starts in June.

Rebuilding Nepal was never going to be easy. Much of the terrain is forbidding; there are still frequent aftershocks. Democracy is a relative novelty; Nepalis are divided by caste, religion and language. A disaster on the scale of last year’s might have been expected to forge solidarity. Instead, it has left the faith of the Nepalese in their fragile society badly shaken. ■



Still waiting

Australia’s navy

Underwater envy

SYDNEY AND TOKYO

Australia spends big on new submarines, upsetting Japan

IT WAS a poignant moment in mid-April when a Japanese Soryu-class submarine sailed into Sydney harbour—the first visit by a Japanese undersea vessel since three of the country’s midget submarines raided the harbour and killed 21 allied sailors during the second world war. This time, Japan had a different aim: it was vying with France and Germany to win a bid to build a new fleet of submarines for Australia. So when Malcolm Turnbull, the prime minister, announced on April 26th that the A\$50 billion (\$38 billion) contract had gone to France, Japan took it to heart. The decision, it said, was “deeply regrettable”. It demanded an explanation.

Intense speculation had surrounded the competition between the three countries for the biggest single weapons-buying deal in Australian history. It will double the size of the country’s submarine fleet to 12. Some observers had taken note of politics in Australia. An election is looming, probably in July. Mr Turnbull says the subs will be built in South Australia, where support for his coalition government has been waning. Lay-offs in the car-making industry, and a downturn in the steel industry, have hit the state hard. Building the subs there, even at a higher cost than doing so abroad, could create almost 3,000 jobs.

But the strategic aspects of the bid had aroused greater interest than the ramifications for Australian politics. Japan’s hopes had soared under Tony Abbott, whom Mr Turnbull ousted as Liberal leader and prime minister seven months ago. Mr Abbott had cosied up to Shinzo Abe, Japan’s prime minister. He had called Japan Australia’s “best friend in Asia” and said he hoped it would become a “more capable strategic partner”. Japan had got the impression that its bid was almost in the bag.

Since taking over, Mr Turnbull has gone out of his way to strike more of a balance in his country’s relationships with Japan and China, Australia’s biggest trading partner. During a visit to China in mid-April, Mr Turnbull spoke of China’s “extraordinary opportunities”. He has tried to dampen speculation that Australia might form a closer military partnership with Japan and America as a hedge against China’s rise.

Australia insists that grand strategy had nothing to do with its decision on the subs. DCNS, the state-owned French naval shipbuilding firm that won the contract, will build a modified version of Shortfin Barracuda-class subs to replace Australia’s age- ➤

ing Collins-class fleet. Mr Turnbull says DCNS is the “most suitable international partner” for building subs to meet Australia’s “unique national-security requirements”. This means subs that can travel greater distances in the surrounding Indian and Pacific oceans.

Australia’s latest defence white paper, released in February, says that half the world’s submarines will be operating in the two oceans within 20 years; it says a “more challenging maritime environment” justifies the doubling of Australia’s undersea fleet. Military planners do not like to say so openly, but they are worried that China’s territorial ambitions in the South China Sea may become a cause of conflict that may affect Australia.

It is likely that Japan lost out because it could not match France’s experience in making warships on such a scale for export. Had Japan won, it would have been the country’s first big arms-exporting deal

since it passed legislation two years ago ending a long-standing ban on selling weapons abroad. The white paper said Australia needed submarines with a “high degree of interoperability with the United States”. Japan could have provided that, but there would have been technical challenges. It would have had to build boats with greater power than the subs it uses, to enable them to travel longer distances. (And the cabins would have had to be adapted for mixed-gender crews.)

Rory Medcalf of Australian National University says Japan should swallow its pride. The purchase of the French-built subs, he argues, will help make Australia the kind of security partner Japan wants in order to deter an assertive China. Even Mr Turnbull, the balancer, says the “special strategic partnership” between Japan and Australia will get “stronger all the time”. Japan, however, will lick its wounds a while longer. ■

blamed for exacerbating annual fires on farmland in Indonesia, which smothered much of the region in a noxious haze.

People living near the Mekong say there is another problem: hydroelectric dams built in China near the head of the river that are holding up its flow. Since March China has loosened some of the dam gates, ostensibly as a favour to its neighbours. But locals say the effect on water levels has been measly. The episode has only heightened fears that China (with which Vietnam has an enormous trade deficit and an intense territorial dispute) can use water flow to hold the country to ransom.

The dams are certainly stripping the Mekong of essential sediment. But many of Vietnam’s water woes are self-inflicted. In the delta, for example, a booming population has built more than 1m wells since the 1960s. These have made saline contamination worse, and are also causing subsidence. In 2014 an American study found that the delta, which mostly lies less than two metres above sea level, could be nearly a metre lower by 2050.

A related problem is the ruling Communist Party’s obsession with maximising rice production. Straining to hit absurd targets—inspired by memories of post-war food shortages—the government has pushed delta farmers to produce three rice crops per year.

This policy has caused the poisoning of paddies with pesticides and has discouraged farming of more profitable, less thirsty crops. It has also prompted the building of a massive network of dykes, canals and sluice gates, which spread pollution from fertilisers and pesticides and restrict the flow of sediment. Koos Neefjes, a climate-change expert in Hanoi, the capital, reckons all this infrastructure has done more to harm the delta than China’s dams.

Fixing this will mean taking on powerful state-owned rice traders and exporters, who benefit from intensive production. Nguyen Xuan Phuc, who took over as prime minister in early April, is said to be a competent technocrat. But he may not have the political strength to carry out difficult reforms. Some simple remedies would be useful, however. Giving farmers earlier warning of drought would help avoid pointless ploughing and planting, says Nguyen Huu Thien, an environmentalist. He says the authorities may soon be caught out by La Niña, a sodden period which often follows El Niño’s parching.

At a roadside café in Cu Lao Dung, young sugar farmers moan about their lot. Life would be easier if they could work at tea stalls, they say, with cooling banana-leaf roofs. Or perhaps on coconut farms, where trees need watering only every few days. Each year supplies of safe drinking water get a little tighter, says one. He worries that in ten years there will be no fresh water at all. ■

Vietnam’s drying delta

Salt of the earth

CU LAO DUNG

Bad weather and bad policy aggravate an awful drought

SHADED by a tree, an elderly farmer gestures hopefully at the scrawny green shoots poking from his small plot in Vietnam’s Mekong river delta. The sugar crop he planted earlier in the year has already failed once, poisoned by dry and salty soil. Fresh growth from the cut-back plants now offers a second chance, but without rain it may go the same way. The farmer is lucky to have a pond full of fish, which he shares with his neighbours. But he says his family will have to find other work this year to make ends meet.

Tales such as this are common on the tiny island of Cu Lao Dung in the delta’s southern reaches (see map), five minutes from the mainland by scooter-crammed ferry. During the annual dry season surrounding waters always turn salty, as brine from the sea pushes up the delta’s channels. But this is an exceptionally dry year, with river levels at 90-year lows. The water has become unusually concentrated with salt, which is spreading more extensively. The salt is creeping through the farmland like damp up a wall.

Drought is plaguing much of mainland South-East Asia, including Myanmar, Laos and Cambodia. Thailand’s shortages are the worst for two decades (though urbanites still splashed around during Songkran, its annual water festival in mid-April). Vietnam has been hit as hard as any. The Mekong basin is home to one-fifth of



the population. It produces about half of the country’s rice. The government says the amount available for export in the three months to June will be 11% less than originally forecast. Drought in the country’s Central Highlands has affected a third of coffee plantations there and now endangers the region’s supply of drinking water. These woes are weighing on the economy. Growth in the first quarter slowed by half a percent year-on-year to 5.5%.

The immediate cause is El Niño, a recurring weather phenomenon which causes downpours in the Americas but heat and drought in much of Asia. Scientists believe that El Niño’s effects are growing stronger as global temperatures rise. Last year it was

Banyan | Once in a lifetime

Convening a rare congress, all North Korea's ruling party has to celebrate is its own survival



THE last time North Korea's ruling Workers' Party, the KWP, held a national congress was in October 1980, when its present leader, Kim Jong Un, was not even born. The meeting's main purpose was to formalise the party's graduation from a traditional Marxist-Leninist dictatorship to a dynastic one. Mr Kim's father, Kim Jong Il, was crowned as dauphin to his own father, Kim Il Sung, the country's founding leader. The eldest Kim died in 1994 but, even in death, remains the country's "eternal president". Meanwhile party doctrine largely ditched Marx, Lenin and the rest in favour of Kim Il Sung's own ideology of *juche*, or self-reliance (real meaning: distrust, confront and rob foreigners). Kim Jong Il ruled until his death in December 2011 without feeling the need ever to convene a party congress. Yet his son is preparing to preside over one, starting on May 6th. In the world's most closed political system, it is not easy to work out why.

Precedent is no explanation. In 1980 five-yearly congresses were decreed. But a 35-year gap has opened since. The calendar imposes no more pressure on Kim Jong Un than it did on his father. Moreover, it will be embarrassing not to welcome foreign bigwigs. In 1980 177 delegates came from 118 countries, including Robert Mugabe, then Zimbabwe's prime minister; the president of Guinea, Sékou Touré; and a Chinese delegation led by the late Li Xiannian, one of an "immortal" first generation of revolutionary leaders. The upcoming congress, it seems, will be a North Koreans-only affair. Kim Jong Un's continuation of his father's pursuit of a nuclear arsenal and the missiles to deliver it—most recently the claimed test of a submarine-launched ballistic missile on April 23rd—has isolated their country even further. An offer this week to halt nuclear testing in exchange for an end to annual American-South Korean military exercises was swiftly dismissed. The congress will highlight the flip side of *juche*. North Korea really is on its own.

Nor does the KWP have much to celebrate other than the claimed "success" (at best partial, say foreign experts) of its four nuclear tests, two of them under this third-generation Kim, with the most recent in January. A fifth seems imminent. Mr Kim has not yet inflicted on his people the kind of famine that killed hundreds of thousands under his father in the late 1990s. But just this month the UN Food and Agriculture Organisation produced a

chilling report on persistent food shortages. It estimated that 10.5m people—two-fifths of the population—were undernourished and that 2.4m pregnant or breast-feeding women and children under five were at risk of malnutrition. Over three-quarters of North Koreans, it concluded, remain "food insecure".

Yet on top of all its other woes North Korea has been enduring a "70-day campaign of loyalty", a propaganda countdown to the congress's opening. Clearly Mr Kim thinks it important. Indeed, some scholars of North Korea, such as Hajime Izumi of Tokyo International University, think nothing has mattered more for him. They believe that flaunting strength through nuclear and missile tests is aimed at laying the groundwork for a self-congratulatory congress—never mind the disastrous impact such chest-thumping has on the country's foreign relations.

Mr Kim presumably hopes the congress will mark a formal consolidation of his own power. When he took over many outside analysts assumed he would merely be the Kim front for a ruling clique of more experienced thugs. In fact, he has ruthlessly purged the senior ranks of the party and army, even executing his uncle by marriage, Jang Song Taek, the regime's main interlocutor with China. The congress may rubber-stamp his installation of loyalists in senior party positions. More of them are likely to be civilians rather than the generals who kept his father in power. It may also enshrine Mr Kim's own ideas in party doctrine. This could involve a switch from his father's *songun*, or "military first", doctrine to his own "*byungjin* line", of pursuing nuclear weapons and economic development in tandem.

The power of wishful thinking

If this happens, optimists believe the congress may prove a turning-point. It is early enough in his rule for Mr Kim not to have to take responsibility for the regime's many failures. He can, however, claim credit for its nuclear prowess. Having proved that North Korea matches the description he had written into the preamble to its constitution in 2012, as a "nuclear state and a militarily powerful state that is indomitable", he can turn his attention to feeding his people and easing their poverty. And that would imply patching up relations with China, North Korea's only ally and main economic lifeline, which after the North's most recent transgressions has seemed more serious about enforcing sanctions.

It would also mean extending olive branches to other countries, particularly South Korea, which in February withdrew from the joint industrial complex at Kaesong, just north of the border. That marked the end of the South's "sunshine" policy aimed at changing North Korea through engagement. Now Mr Kim himself may slowly let the sun in, adopting the market-oriented reforms and opening to the outside world that catapulted China to prosperity, and which its leaders have long urged on North Korea.

It would make sense. In a reformed North Korea, Mr Kim would have more resources to buy the loyalty of those around him, and he might sleep easier. China has shown that economic development can be achieved without the party losing power. Since both China and the West fear his regime's collapse into bloody chaos as much as its nuclear bellicosity, he would find willing helpers. Yet it is hard to see grounds for optimism in Mr Kim's rule so far. He has shown no concern about antagonising the rest of the world, has promoted hardliners and has pursued the potential for nuclear warfare even more obsessively than his father. The congress may be less a turning-point than a dead end, saying to the world: this is North Korea today; live with it. ■



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Homosexuality

Rohmer-therapy

BEIJING

Acceptance of gay rights is growing. But gay marriage remains a distant prospect

AT THE end of March a website run by the Communist Youth League published news of a remarkable development in China's staid, heavily censored film industry. A preview had been released online of what is being described as mainland China's first film focusing on a gay romance, "Looking for Rohmer". (On television, there have been documentaries about gay relationships before, as well as dramas hinting at them.) The new film, to be shown "soon", describes the relationship of two young men, one Chinese, one French, as they travel across Tibet.

The two are not shown holding hands, let alone doing anything more intimate. But China's cultural commissars, rarely open-minded at the best of times, have been in an unusually censorious mood since 2014, when President Xi Jinping stressed that art must "serve socialism".

Cheng Qingsong, a film critic, says the makers of "Looking for Rohmer" worried that the censors might change their minds after they approved the film for release last year. The trailer's appearance, and the Youth League's interest in it, suggests all is well. More broadly, it shows that, despite a political chill, conservative attitudes to same-sex relationships are changing. In the past, homosexuals were sometimes jailed for "hooliganism". In 1997 the remov-

al of that ill-defined crime from the statute books lifted what was, in effect, a ban on homosexual activity. In 2001 the health ministry struck homosexuality off its list of mental diseases. But public tolerance remains low. Clinics still offer "cures" for gay people, involving electric shocks or nausea-inducing drugs. No well-known public figure in mainland China has come out.

In a recent survey of 18,650 lesbians, gay, bisexual and transgender (LGBT) people by WorkForLGBT, a China-based NGO, only 3% of the male respondents and 6% of the female ones described themselves as completely out. A third of the men (though only 9% of the women) said they were in the closet. Only 18% of the men said they had come out to their families, and nearly 80% were reluctant to do so because of family pressure. But half the men and three-quarters of the women had come out to friends, an indication that private tolerance is expanding.

The government itself is also becoming less hostile to gays. In 2013 censors permitted websites and newspapers to discuss LGBT issues. Li Yinhe, an academic and promoter of gay rights, says this was a turning point for homosexuals. Online dating services for gays have sprung up. One of the largest of them, Blued (run by a gay former policeman), was read by over 40% of

those surveyed by WorkForLGBT.

A milestone was reached at the end of 2014 when a court in Beijing gave its verdict in a case lodged by a gay man against a clinic which had offered to change his sexuality. He accused it of false advertising and malpractice. The court fined the clinic and ruled that homosexuality was "not a mental disease" and did not require treatment. It was the first reported decision of its kind by a Chinese court.

Gay marriage is still not recognised, but public discussion of it is becoming more lively. Some gay people have held unofficial wedding ceremonies. In June, two internet entrepreneurs (pictured) organised one in a park in Beijing, after encountering great difficulty finding a venue willing to host the event. Chinese media gave the celebration much publicity.

Testing the law

In January a court in the southern city of Changsha agreed to hear a suit filed by Sun Wenlin, a 26-year-old man, against a government agency responsible for marriages. Mr Sun said the agency had illegally refused him permission to marry his male partner. On April 13th, with hundreds of gay-marriage supporters outside, the court ruled against him. That was expected. What was surprising was the court's acceptance of the case, and the official media's enthusiastic coverage. "It is we who will win in future," said Mr Sun's lawyer, as quoted in a Chinese newspaper.

But Hu Zhijun, the co-founder of a support network for lesbians and gays in China, thinks gay marriage will not become legal until there is clear public support, which is still a very distant prospect. "People don't want those outside the family to ►►

know," he says. "They still fear losing face."

And although "Looking for Rohmer" has been approved for release, other works have not been so lucky. Early this year, a popular gay online series called "Addicted (Heroin)" was banned—apparently because of its gay content—after several episodes had been uploaded. In December two television-industry associations issued guidelines, recently leaked online, which said televised portrayals of homosexuality were taboo—as were those of extramarital affairs and sexual promiscuity.

Still, a decade ago censors had banned the showing in China of "Brokeback Mountain", a Hollywood film about a gay romance between cowboys. It was thus, as one Chinese newspaper put it, "unexpected" when "Looking for Rohmer" gained the censors' approval. ■

Urbanisation

Megalophobia

BEIJING AND SHANGHAI

China's biggest cities are afraid of growing bigger. They should not be

ON A recent afternoon excavators and dump trucks crammed into what remained of the alleyways of Xupu on the western edge of Shanghai. Their task was to remove debris from the place, formally a village but in reality an urban slum. Officials had had enough of the eyesore: in October they had sent in demolition crews which, within two months, had evicted some 13,000 migrants and flattened buildings with a total of 6,000 rooms. "Seven out of ten people I know here have left," says Zhuang Shiguo, a 42-year-old kitchen worker from Jiangsu, a neighbouring province, standing next to a heap of rubble. In recent months the authorities have targeted more than 30 other slums in Shanghai for similar "makeovers".

Shanghai is stepping up its efforts to control the growth of its population. One

of its techniques is to make it more difficult for unskilled workers from the countryside to live there, such as by knocking down their cheap, ramshackle accommodation. Similar efforts are under way in the capital, Beijing. The governments of both cities have been deluged with complaints about pressures on transport, schools and hospitals. Their response has been to strike at those most easily displaced: rural migrants whose household-registration papers, or *hukou*, make them ineligible for urban benefits such as social housing or subsidised health care and education.

Last year Beijing's government said it would not allow the capital's population (those resident six months or longer) to exceed 23m before 2020. That is only 1m more than the current population, which inhabits an area half the size of Belgium comprising a main city, several satellite towns and a rural expanse. Shanghai followed, setting a population limit of 25m by the end of the decade for its urban and rural areas, up from 24m today. The two cities' targets contrasted with a far more relaxed one set by Guangzhou, a megacity in the south: 18m by 2020, an increase of 4m.

Living in large cities has never been easy for rural migrants. Until 2003, police could expel anyone found without proof of employment or a residence permit (often after detaining them for weeks or even months). The *hukou* system is still an invisible barrier. Migrants are often not allowed to buy houses or cars in a city if they do not have *hukou* there. Officials, sometimes lax in their application of safety rules, are zealous in their use of them to evict migrants from lodgings.

In 2014 the central government issued a plan for what it called "new-type urbanisation". This envisaged 60% of the population living in urban areas by 2020 (56% do now) and outlined measures to give migrants greater access to public services. But the 16 largest cities were urged to restrict migration by using a "points system" offering urban-welfare privileges only to the educated and affluent few. China's new five-year plan for economic and social development, approved in March, calls for "people-centred urbanisation". But some cities are allowed to be choosy about what kind of people they focus on. The government does not want the biggest ones to develop the kind of slum-sprawl that is common in other developing countries. It worries that shanty towns may breed social instability and blot the cities' image.

Beijing and Shanghai, the megacities of greatest political and business importance, have exploited this leeway with the most enthusiasm. Both have large middle-class populations, many of whose members resent sharing the cities' superior amenities with people they regard as outsiders.

Since 2014, the two cities have tightened restrictions on access to local schools.

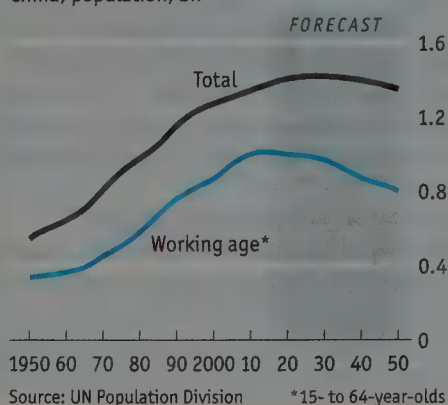
Parents in Beijing need to show contracts proving they have jobs and housing. This is difficult for the many migrants who are employed casually and have no formal agreement with their landlords. Such restrictions contributed to a fall in the number of migrants' children enrolled in Beijing's primary schools by 22% in 2014. Using similar rules, Shanghai is estimated by some Chinese scholars to have excluded 50,000-80,000 children from its primary schools in the past two years. In February the central government issued new guidelines aimed at improving the lot of more than 60m children "left behind" in the countryside by migrant workers, appealing to parents to take their children with them when possible. Beijing and Shanghai are making that more difficult.

The cities' measures may be working. Government statistics show the migrant population in Shanghai fell by 1.5% in 2015, the first drop in 28 years. In Beijing, the number of migrants increased by 0.5%, the slowest rate since 1998.

There are other reasons for the cities' loss of allure. They include the soaring cost of housing in both, and the growth of job opportunities in smaller cities closer to migrants' hometowns. There is also a dwindling supply of cheap labour in the countryside. The country's working-age population fell by nearly 5m last year, the biggest drop ever (see chart). But Beijing and Shanghai are compounding the problems caused by these trends. The two cities may believe they are helping middle-class residents, but they risk pushing up the cost of the labour that the middle classes depend upon, not least for help at home. That, it seems, is a price the two cities are willing to pay—and a much lower one than building more schools and hospitals and better public transport. ■

Fewer hands

China, population, bn



An unwelcome sight



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Vision or mirage?

Saudi Arabia's post-oil future

RIYADH

Bold promises from a young prince. But they will be hard to keep

IF ANYONE needed confirmation that Muhammad bin Salman, Saudi Arabia's deputy crown prince, is a man in a hurry, they got it on April 25th. The 30-year-old unveiled a string of commitments to end the kingdom's dependence on oil by 2030 which, in themselves, would be a remarkable achievement for a hidebound country. Then he proceeded to trump himself, saying that the kingdom could overcome "any dependence on oil" within a mere four years, by 2020.

That may have been meant to convey a sense of urgency; but it also sums up what seems to be manic optimism among the youthful new policy-setters of the royal court. They have yet to set out a cool, detailed explanation of how to turn vision into reality. That has been promised since January, and will now supposedly be provided in a few weeks' time.

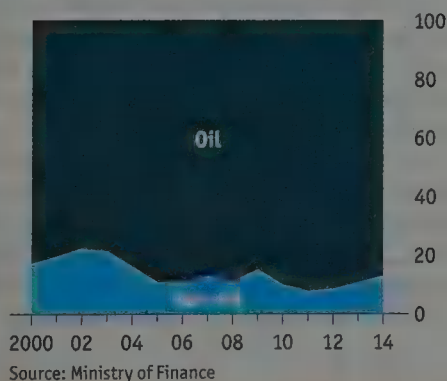
The outlines of the announcement, which has generated much anticipation, had been well trailed. They included: the floating of a small stake in Saudi Aramco, the world's biggest oil company; the creation of the world's largest sovereign-wealth fund to invest in a diverse range of assets; more jobs for women; and more vibrant non-oil industries, ranging from mining to military hardware. These are radical proposals in a country that has historically generated nine-tenths of government revenues from oil, and whose budget deficit is

expected to reach 13.5% of GDP this year after an 18-month slump in oil prices.

Prince Muhammad backtracked on none of them this week—though his modest goal of raising the female participation rate in the workforce from 22% to only 30% in 15 years appeared to reflect resistance from the Wahhabi religious establishment, whose shadow hangs over all reform in Saudi Arabia. A promise that women would be allowed to drive, essential if they are to enter the workforce fully, had been hoped for by some, but failed to materialise. There was also no word on democratic reform or other freedoms: the sort of things which might be expected to appeal to a youthful population.

A hard habit to break

Saudi Arabia, government revenues, %



Source: Ministry of Finance

The prince expects the sale of a stake of up to 5% in Aramco to value the company at a minimum of \$2 trillion, and he promised to transform it into a "global industrial conglomerate" (see next article). Much remains unclear. But the proceeds of the sale, and the business itself, would be put into a sovereign wealth fund known as the Public Investment Fund, which with other assets could be worth as much as \$3 trillion, generating plenty of non-oil investment income. Other industries would be given incentives to grow. The kingdom, with the world's third-biggest military budget, spends only 2% of it on arms purchases at home. The "vision" calls for over half of it to be spent on locally made armaments by 2030.

To achieve such goals, Saudi Arabia needs to throw itself open to trade, investment, foreign visitors and international codes of conduct such as more transparency and secular laws. But much of this is anathema to the clerics who, for decades, have sought to shun the outside world. Powerful business interests within the prince's own huge extended family will also slow things down. The tense feud with Iran, stoked by Prince Muhammad through a proxy war in neighbouring Yemen, adds potential instability to the risks that investors would face. But a step in the right direction was unveiled this week with the promise of "green cards", permanent-residence documents for foreigners.

The indolence of a society brought up to expect that oil riches will be lavished upon them is another large hurdle. For years, efforts to end the kingdom's addiction to oil have run up against a wall of apathy. As one Saudi commentator puts it, "It's been like a father telling his 40-year-old son that it's time to go out and get a job." Prince Muhammad's youth in a coun- ▶▶

► try used to gerontocratic rulers should make it easier for him to motivate young people, and social media give him better access to the pulse of the country. But with oil revenues weak and unemployment at 11.6%, the chances of disillusion are strong.

That is why he will have to address some of the questions hanging over the reforms when he reveals the National Transformation Plan, fleshing out his vision, in late May or early June. Foreign executives in Riyadh, impressed by the urgency with which Prince Muhammad's economic council appears to be slashing government waste, say concrete steps are needed before investment will come in.

"The big change here is that they've recognised 'We're inefficient, we're corrupt and we need to change,'" says Paddy Padmanathan, chief executive of Acwa Power, a Saudi electricity-generator which hopes to benefit from a pledge to produce 9,500 megawatts of renewable energy. He lauds the cutting of subsidies for public services such as electricity. But he adds that to attract investment the government will need to clarify the privatisation plans for its util-

ities, and show how they can balance their books. Investors "don't want to rely on a macho government saying 'Trust me, I will pay,'" he says. Another businessman says the country needs labour-market reform so that it becomes politically possible to fire Saudi employees who fail to do their jobs. "If you fired 20 Saudis who didn't turn up for work, you'd find yourself in a Twitter storm," he says.

Ultimately, the chances for success may depend on the power of the prince himself, who has amassed enormous control over policymaking since his 80-year-old father, Salman, became king last year. But he remains only second in line to the throne, and has a stalemate in Yemen counting against him. "This is not a dream, this is a reality that will be achieved, God willing," he says. But when the sums involved are in the trillions of dollars, the neighbourhood is fraught with tension and the reforms require the tearing up of a social contract to succeed, the burden of proof is high. Saudi Arabia has promised diversification away from oil for decades. The prince still needs to prove that this time is any different. ■

the company to promise a steady stream of forward income to shareholders.

The company is also likely to grow. In its oil and gas business it seeks a global stage rather than a domestic one, Mr Falih says. The company is giving serious consideration to investments in liquefied natural gas and other gas-related projects abroad.

At the downstream end of the business, Aramco plans to expand in Saudi Arabia and beyond. The chairman says it plans to build up domestic businesses in chemicals, power and renewable energy. It will also create subsidiaries that will build oil rigs and offshore platforms, and maintain and repair supertankers. Some of these could later be spun off. Elsewhere, it aims to broaden its presence in fast-growing emerging markets by refining oil, marketing it and turning it into petrochemicals.

In the long term, the success of the strategy will depend on the future level of demand for hydrocarbons. Mr Falih says that many policymakers in Saudi Arabia think that because of climate change, rising fuel efficiency and other factors, oil demand will probably peak before the supply starts to run out. The timing of peak demand is unclear, but whether it is 15 or 40 years away, he says the pressure is on to transform the Saudi economy: "If we end up being too anxious and calling it sooner than it really happens, it's going to be for our betterment, because we will be ready sooner than others." But he adds that barring "a game-changing technology breakthrough", oil will be in demand for decades to come as a transport fuel and as a feedstock for advanced materials, petrochemicals and plastics.

The hazy future should not deter investors from buying Aramco shares, Mr Falih says. Demography, mobility trends and urbanisation all require copious amounts of fuel. And oil, he says, is still the most convenient source of energy. ■

Saudi Aramco

The big float

RIYADH

How to part-privatise the world's biggest company

THE centrepiece of Saudi Arabia's plans to transform its economy is the blockbuster sale of a stake in Saudi Aramco, reckoned to be the world's most valuable company. The government hopes it will put a value on Aramco of about \$2 trillion. The proceeds will be central to the country's plans to create a war-chest to buy non-oil assets from around the world and complement volatile oil revenues with, it hopes, steadier investment income.

But in an interview with *The Economist* on April 26th, Aramco's chairman, Khalid al-Falih, noted that potential complications in the sale of the shares mean its final form is not yet decided. An initial public offering (IPO) would offer to investors reliable dividends, from a country that produces one in every eight of the world's barrels of oil, and the chance to take a share in a company transforming itself into a "global conglomerate". But the size of the potential stake is unprecedented—\$100 billion, or four times the size of the biggest IPO anywhere in the world to date, that of the Chinese e-commerce firm Alibaba in 2014. Only the largest stockmarkets, like New York and London, could handle the sale (some shares would also be offered in Saudi Arabia). That throws up potential le-

gal problems that could have "unintended consequences", Mr Falih says.

A listing in New York, for example, would raise the possibility of "frivolous lawsuits" against the kingdom, he says. Analysts have already noted the Saudi government's anger over a bipartisan bill before America's Congress, which the White House has threatened to block (though a veto might then be overridden), which would let families sue the kingdom over the terrorist attacks of September 11th 2001. Among the 19 hijackers were 15 Saudi nationals. The Saudi government has always denied involvement. The bill could weaken sovereign-immunity defences, leading to a possibility that a listed Aramco could be exposed to legal action. A London listing, meanwhile, might lead to awkward questions about the reach of British authorities into a company's global revenues and assets.

The IPO would enable investors to buy shares in the Aramco parent company. That whets their appetites, because it includes access to the world's most lucrative oilfields. Though Mr Falih notes that the reserves are constitutionally the property of the kingdom, he says that a concession and an appropriate fiscal regime would enable



Open to offers



Truth and reconciliation in Tunisia

Shadows from the past

KASSERINE AND TUNIS

A dark history hangs over the only bright spot in the Arab world

SOMETIMES it was as simple as leaving the lights on. "We lost any sense of whether it was day or night," says Nasri Muhammad Naceur, one of thousands of former political prisoners in Tunisia. But the torture meted out in the infamous cells beneath the interior ministry, where Mr Naceur was held, was often much worse. During the dictatorships of Habib Bourguiba, from 1957 to 1987, and Zine el-Abidine Ben Ali, from 1987 to 2011, many prisoners were hung naked, like a roast chicken, from an iron bar. Others were beaten or electrocuted. Women picked up by the state stood a good chance of being raped.

More than five years after the revolution that tossed out Mr Ben Ali and ushered in a wobbly democracy, Tunisia is still coming to grips with its brutal past. Mr Naceur and thousands of others have shared their stories with the country's Truth and Dignity Commission. Inspired by the South African body that examined the sins of apartheid, Tunisia's commission aims to deliver justice to the government's victims from as far back as 1955, a year before the country's independence from France. According to the law creating the commission, those responsible for the worst crimes, such as rape and murder, should be prosecuted; victims of abuse and corruption should be compensated; and the commission should offer reforms so that the

past is not repeated.

The sweeping effort is the first of its kind in the Arab world, where oppressive leaders are still the norm. The hasty executions of Saddam Hussein and Muammar Qaddafi passed for transitional justice in Iraq and Libya. The Egyptian government of Abdel-Fattah al-Sisi has locked up victims of the old regime, while allowing its remnants to return to power. The difficulty of achieving reconciliation by picking at old wounds is perhaps why Lebanon did not really try after ending its civil war in 1990. In several countries, such as Yemen and Iraq, past grievances have powerfully contributed to new conflicts.

Always with them

It is a shame, then, that the example Tunisia is setting for the Middle East is flawed. Over a year into its five-year mandate, the Truth and Dignity Commission has suffered from infighting and mismanagement, say a growing number of critics. Its leader, Sihem Bensedrine, a former journalist and human-rights activist, has been attacked by politicians and the media. The government expresses support for the process, but seems intent on undermining it. The new order looks a lot like the old one, say Tunisians, who worry that justice will not be done.

It was never going to be easy. Many of

the claims the commission has received are about events that are decades old. Some, such as those concerning election fraud and corruption, could be referred for prosecution, but it is difficult to know where to draw the line—or which complaints are valid. In Kasserine, one claimant was in fact a ruling-party official under Mr Ben Ali. For his part, Mr Naceur feels his nephew deserves financial compensation because he was dismissed from his job during Mr Naceur's time in prison, and even because he developed a physical disability. Others may not agree.

A series of hearings, some public, are meant to uncover the truth. But they have been slow in coming. Some blame Ms Bensedrine, who has struggled to win support for the commission. Critics point to her confrontational style and suggest a political bias: the commission was set up by the previous government, led by Islamists from the Ennahda ("Renaissance") party, many of whom are past victims. Right now Ennahda is a minor coalition partner; a secularist party, with links to the old regime, leads the government. Parliamentarians have accused Ms Bensedrine of corruption and, preposterously, terrorism. Parts of the media, controlled by an old elite, have been even more vicious.

Ms Bensedrine dismisses the "smear campaign". The real problem, she says, is those in government, "who do not want us to do our job". Politicians who served under Mr Ben Ali still hold sway. The commission has feuded with the state over funding, personnel and access to information. Last year Beji Caid Essebsi, the president, proposed a law that would give amnesty to officials who colluded with corruption (but did not benefit) and create a new commission to handle privately the cases of crooked businessmen and civil servants who took bribes. They too would go free if they return their illicit gains and pay a fine.

That bill stalled in parliament, but revisions are in the works. Ennahda, which some accuse of prioritising stability over justice, is part of the discussions. Supporters say the measure would relieve some of the burden on the commission, which should focus on human-rights abuses. Mr Essebsi hopes it will calm a fearful bureaucracy and encourage potential investors, who may be waiting to see how far the investigations will reach. Tunisia's economy, still suffering from Mr Ben Ali's cronyism, is teetering. "Businessmen are ready [for reconciliation], but they're afraid," says the president, who himself served as a minister under Bourguiba and was president of the lower house of parliament under Mr Ben Ali.

They ought to be afraid, say critics of the proposal. Compliant bureaucrats and conniving businessmen allowed Mr Ben Ali's clan to dominate the economy, though they produced little of value. The corrup- ►►

tion went hand in hand with other abuses, making it difficult for the commission to disentangle the two. (Political prisoners, for example, often had their property confiscated.) And the graft persists. "Today there are still the same officials running the public sector and doing the same for other groups," says Ms Bensedrine. But the proposed law would undermine the commission's other task, which is to dismantle the system of corruption by weeding out bent officials. It doesn't make economic sense, says Ms Bensedrine.

The fines assessed under Mr Essebsi's proposal would at least be used to help poor regions of the country, where there is concern that hopeless young men are turning to terrorism. Residents of rural areas complain of a lack of security. But there is

also fear that the security forces, which often duck accountability, will revert to old ways. Several big terrorist attacks last year and the large presence of Islamic State in Libya, next door, make them harder to confront. Reports of torture by the police are still all too common.

In the neglected region of Kasserine, the official bickering appears out of touch. Many of those who have filed claims with the commission want nothing more than an acknowledgment of wrongdoing. Mr Naceur, whose crime was being an Islamist, seeks *rad attibar*. "It means respect," he says; "restitution in the eyes of society." If the commission can find a way to deliver that without tearing the country apart, Tunisia will have set another precedent for a troubled region. ■

Car ownership in Kenya

Kicking the tyres

NAIROBI

The government is not doing much for drivers

GET in a taxi in Nairobi and the dashboard will often be lit up with Japanese characters. Most of the cars that ply east Africa's roads once had another life elsewhere, usually in Japan. As well as being right-hand drive, Japanese cars are favoured for being in better condition than other rusty hand-me-downs. Importers reckon that as many as 90% of second-hand vehicles in Kenya come from that country. Yet the booming trade is now being throttled by government intervention.

Kenya wants to boost its own fledgling auto industry, feeble though it is, so it is trying to make car imports harder. Vehicles shipped to Kenya increased by 40% to almost 110,000 a year between 2010 and 2015. But a drastic additional tax, which came into effect at the start of December, has already slashed imports by a third—bad news for buyers, and also for government coffers, which as a result of the falling numbers could end up with less cash.

A new import duty has been set at a flat rate rather than *ad valorem*, so it has more of an impact on smaller cars than big ones; and a higher tax is used for older cars than newer ones. It was also slapped on lorries, pickup trucks and other commercial vehicles. If you want to bring in a nearly new, top-of-the-range 4x4 you're in luck. But most of Kenya's burgeoning middle class buy smaller, older cars (Kenya does not allow vehicles older than eight years into the country) and taxes on some cheaper imports have more than doubled. For example, a seven-year-old car that sold for around \$3,700 last year now costs \$5,500.

The auto industry suffers its fair share of dodgy dealing. Sean Garstin, a Briton who imports around 100 cars to Kenya a year, recalls a customs official at the notoriously corrupt port of Mombasa demanding a 600,000 shilling (\$6,000) bribe on top of the import duty of 850,000 shillings. Reports abound of older vehicles being smuggled across the border from Uganda to get around Kenya's eight-year rule. Meanwhile, thousands of stolen British cars are making their way to the ports of Mombasa, Boma in Congo and Dar es Salaam in Tanzania, says Nathan Ricketts, a

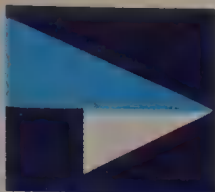
detective with Britain's National Vehicle Crime Intelligence Service. Around 79,000 vehicles were stolen in Britain in the year to September 2015; around 40% of these will eventually be recovered. While there are no data for the number that end up abroad, Mr Ricketts, who found a stash of 28 high-end British vehicles in Kampala last year after tracking one via Oman and Kenya, estimates 80% of stolen vehicles spirited out of Britain eventually end up in east and central Africa.

Yet all the bribery and vehicles of dubious provenance have not sated the demand for second-hand cars. And cheap local ones have not materialised. Even relatively low taxes of 26% on car parts have not tempted more factories to look past high energy costs, a lack of skilled labour and the absence of a supply chain to set up shop in Kenya. That has not stopped governments ploughing money into doomed local manufacturers over the years. In the early 1990s, Kenya spent millions building just five prototype Nyayo Pioneer cars. Now Uganda, which has no vehicle-assembly factories, is repeating the feat, having splurged \$70m on Kiira Motors since 2012. After producing test electric cars, and a solar-powered bus that broke down on its maiden drive, the government-owned company is planning to make 305 traditional pickup trucks in 2018. They will be sold for \$32,000—having cost \$100,000 each to make.

Private companies do not necessarily find things any easier: thanks to all the bureaucracy and lack of an established local manufacturing industry one Kenyan start-up, Mobius Motors, has taken five years to produce its first 50 low-cost vehicles. African governments would do better to ease up on both the white-elephant projects and punitive import taxes if they want to help their citizens to drive. ■



Recognise any of them?



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- b) for the Asset in Yerevan: BARS Real Estate Agency (1 Baghramyan Avenue, Yerevan, Armenia, Marina Chatinyan, e-mail: marina.chatinyan@bars.am, tel. +374 10 561411, fax: +374 94 403873) and
- c) for the Asset in Pretoria: KLC Law Firm (2 Ypsilantou Str., Athens 10675, Greece, tel. +30 210 7264500, Nikos Pittas, e-mail: nikos_pittas@klclawfirm.com and/or Eleana Pastra, e-mail: eleana_pastra@klclawfirm.com).

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Smuggling in Nigeria

Blurred lines

KANO AND COTONOU

The government's protectionist policies are keeping the bootleggers in business

THERE is a clamour down the tiny alleyways of Kano's central market, in northern Nigeria, as vendors thrust fabrics at passers-by, promising the best colour, quality and price. Amid the racket, Alhaji Zakari sits cross-legged on his countertop, surrounded by materials marked "Made in Côte d'Ivoire". "They're not", he says with a degree of honesty which can do little good for sales. "It's imitation from China."

Nigeria is awash with contraband. Chatham House, a British think-tank, reckons that at least 70% of trade between Africa's biggest economy and its neighbours goes unrecorded. In 2010, the World Bank estimated that \$2 billion worth of textiles like Mr Zakari's are squirrelled into Nigeria every year.

One bootlegger supplying the latter is Adamu Muhammad, or so he gives his name. Like many others in the north, his syndicate brings goods in through Cotonou, Benin's main port and commercial capital, then through Niger, and across Nigeria's border. For a decade, convoys of up to 50 of the syndicate's vehicles have rattled into Kano without obstruction, because bigwigs in the capital were paid to let them pass. A lucrative lorry-load may command a fee of up to 1m naira (\$5,000 at official rates), Mr Muhammad says. In return, "Everyone is settled—from Niger to Kano."

Sadly for his crew, that party is now over. Almost a year ago Nigeria acquired a stringent new president, Muhammadu Buhari, who has vowed to crack down on corruption. He put trusted counterparts at the top of misbehaving agencies such as the customs department, so it is now harder to get the sign-off for illegal deliveries. It seems to be working: Mr Muhammad says his friends must wait until the process can be "facilitated" again.

Mr Buhari has affected cross-border business in other ways, too. Nigeria's economy, dependent on oil (the price of which has slumped since 2014) is in dire straits. In a bid to conserve foreign exchange, Mr Buhari has imposed harsh restrictions on imports of goods that he reckons could be made at home. As a result, the value of the dollar has soared on the black market, making it increasingly expensive to buy from abroad. In Benin, huge car dealerships used to do a roaring trade with Nigerians who smuggled vehicles through the bush. They are now eerily quiet. A peeved merchant of second-hand tyres says he is doing "zero business".



Another part of the reason that goods are secreted into Nigeria is that shipping to Lagos is slow and bureaucratic. Customs officials ask businesses to produce 13 documents when they bring a shipment in, and nine on the way out. Corruption is rampant, and tariffs are high. Import bans on

items including rice and carpets are supposed to protect local businesses, but instead push trade underground and make rich the cronies who win waivers. It is no coincidence that women cross into Nigeria carrying rice on their heads, or that Mr Muhammad also specialised in deliveries of cooking oil and pasta, the import of which is supposedly banned.

This hurts Nigeria's economy (in 2010 the World Bank estimated annual revenue losses from smuggling of \$200m). Despite the efforts to protect them only a handful of the 175 companies producing local fabric in the mid-1980s survive today.

The World Bank says that removing import bans would lift 4m Nigerians out of poverty. Unfortunately, Mr Buhari thinks that barriers will help shore up the currency and stimulate domestic production. Under his watch, foreign exchange has been banned for imports of 41 items, including glass and wheelbarrows.

History shows this will not work. At Benin's Seme border post, an immigration official watches a motorbike laden with rice whizz past and declares, with a smile: "Smuggling is easy." ■

Sport and race in South Africa

Diversify or die

The government punishes sports bodies whose teams are too white

IN A move that has shaken one of the sportiest countries in the world, South Africa's government has told four of the country's most muscular sports associations that they may no longer host international events because their teams are too white. Athletics, cricket, netball and rugby have all been thus chastised. Rugby feels sorest, as its union was set to bid to hold the World Cup at home in 2023. Only football, in the government's view, has passed multiracial muster.

Whereas blacks make up four-fifths of the populace, they are still a small minority in many top teams. A growing number of South Africans of mixed race—still known as Coloureds—are excelling in rugby and (along with some players of Indian descent) in cricket, but black Africans remain thinly represented at the top. This is largely because they have poor facilities and training programmes, so those sports have yet to catch on among the black majority. In cricket, ten private schools are said to have produced a third of South Africa's international players since 1991.

Football is the most popular sport among black South Africans, whereas whites, especially Afrikaners (whites of mainly Dutch descent), still dominate at the top of rugby. For many blacks, the

game still smacks of apartheid. John Carlin, whose book inspired the film "Invictus", which portrayed Nelson Mandela inspiring an almost lily-white national rugby team to World Cup victory in 1995, the year after apartheid ended, says that black players have been "socially marginalised" and that "subtle racism" still prevails at the top.

In 2014 the government agreed with the main sports associations that 60% of national team players should not be white. Cricket has made big strides. There was much celebration earlier this year when Temba Bavuma became the first black South African to score a Test century (against England, as it happens). On occasion more than half of national cricket teams have been non-white.

But that is not good enough for Fikile Mbalula, the combative minister of sport, who issued the recent edict. By the by, it is thought that he may be bidding for a starring spot when the ruling African National Congress has its own party elections next year.

His intervention has certainly stirred emotions across the racial spectrum. A sports commentator of Indian background, Dhirshan Gobind, lambasted Mr Mbalula: "How narrow-minded, short-sighted and indeed racist can one be?"



Northern Europe's angry **WUTSPARER**

Mario battles the Wutsparer

AMSTERDAM

Thrifty Germans and Dutch are furious at low interest rates, and the ECB

THIS week millions of people in the Netherlands celebrated the national holiday by getting up at dawn, staking out a patch of pavement and selling off their junk. The traditional King's Day flea market gives the Dutch a chance to indulge in their favourite pastime: bargain-hunting. Their eastern neighbours are just as frugal. "Germans love saving. They think there's something morally inferior about people who borrow," says Reint Gropp, a German economist. In both Dutch and German, the word for debt also means "guilt".

Their taste for saving and aversion to borrowing helps to explain why both countries' citizens have lots of money in their saving accounts. This seemed to serve them well when interest rates were high. But in recent years, as rates hovered near zero, Europe's best savers grew angry that their thrift was not rewarded. Now they have found a scapegoat: the European Central Bank and its suspiciously Italian chairman, Mario Draghi.

This month Germany's finance minister, Wolfgang Schäuble, attacked the ECB's policies of negative interest rates and quantitative easing, blaming Mr Draghi for the rise of the populist AfD party. At a hearing, Dutch MPs prodded their own central bank's governor to say whether he thinks the ECB is exceeding its mandate. Pieter Omtzigt, a Christian Democrat MP, later said that the ECB was "a Mediterranean central bank" whose policies are redistrib-

uting wealth from northern savers to southern sovereign borrowers.

The media are on the attack, too. "Who can stop Draghi?" roared a typical German headline. ("We would stop Draghi!" answered an online article by Nicola Beer, general secretary of the liberal FDP party.) In *Die Welt*, a daily, Hans-Werner Sinn, a conservative economist, claimed low rates would cost Germany €327 billion (\$369 billion). In another article, the paper cited estimates by DZ Bank that after six years of low rates, the average German citizen will have lost out on €2,450 by the end of 2016.

The conflict over the ECB has brought back the tensions between Europe's north and south that emerged during the euro crisis. With their large current-account surpluses, Germany and the Netherlands are net lenders; low interest rates hurt them and help southern European countries, which borrow more. This is partly due to savings habits. Germans put aside 17% of their disposable income, while the Dutch save 14%—on top of their huge pension-fund assets of €1.3 trillion, almost double their GDP. That compares with 11% in Italy, 9% in Spain and negative savings rates in Cyprus and Greece. Both Germany and the Netherlands are particularly affected by ageing populations, which means saving more makes sense.

But the Germans and Dutch seldom mention why the ECB is setting such low rates. The euro-zone economy is barely

growing, and may be on the verge of deflation. Trying to force rates up now would be disastrous, says Michael Burda of Humboldt University. Particularly in southern Europe, indebted governments would have to redouble austerity measures, households would curtail spending, firms would defer hiring and troubled banks would be pressed by rising costs. That could send Europe into recession—a boon for political extremists. Besides, the bank's control over rates is limited: as Mr Draghi reminded critics last week, low interest rates are "a symptom of low growth and low inflation", not the cause.

If German and Dutch savers are vulnerable to low rates, it is partly due to their own investment habits. In Germany nearly four-fifths of household wealth is in bank deposits, life-insurance policies or pension funds, where performance is closely tied to interest rates. In the Netherlands two-thirds sits with pension funds and insurers. Southern Europeans save less, but they spread their bets more: in Italy and Spain pensions and insurance make up less than a fifth of household wealth, while over a third is in equities. And southerners are more likely to own their homes than Germans, so they profit from rising house prices when mortgage rates fall.

Hoist by their own pension funds

Home ownership is higher in the Netherlands. But last week the largest Dutch pension funds warned they may cut benefits in 2017. Premiums may be raised, too. As for Germany's savings banks, they have spared depositors by not passing on the ECB's negative rates, but real returns are still only just above zero. The German media talk of *Wutsparer*, or "angry savers".

Another flashpoint is inequality. A new book by Marcel Fratzscher, an economist, claims that Germany's bottom 40% has ►►

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▶ less wealth than anywhere else in the euro zone. Germany's financial industry is lobbying its government, especially Mr Schäuble, to stand up for savers (and for them). "It's the first time countries and institutions in the north are really suffering from the euro-zone crisis," says Guntram Wolff of Bruegel, a think-tank in Brussels.

Germany and the Netherlands could have enacted reforms long ago to make household wealth less dependent on interest rates. Germany's hundreds of small savings banks struggle in a low-rate environment because regulations bind them to a simple business model of taking deposits and lending locally. Countries such as Italy and Spain got rid of such set-ups years ago. The real target of German voters' anger should be their own government, which has hesitated to reform.

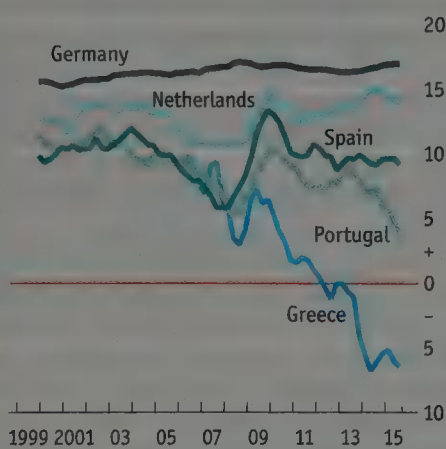
The Netherlands' pension funds, meanwhile, generally promise defined benefits. Legally, they must meet strict coverage ratios, so when rates fall they are forced to save large amounts of cash. They end up "fighting rates like Don Quixote", says Gerard Riemen of the Dutch pension federation. This is an unfortunate side-effect of low rates, which are intended to encourage spending, not saving.

Mr Draghi's job—as defined in its German-inspired mandate—is not to guarantee yields for savers, but to meet the ECB's inflation target. But with elections in both Germany and the Netherlands next year, he has become a punch-bag for Eurosceptic populists. Mainstream parties are terrified of losing older voters, and many join in the ECB-bashing.

The result, says Robert Grimm of Ipsos, a pollster, is a "moral panic" that Germans are again bailing out dubious foreigners. This, he thinks, has indeed aided the AfD's rise. In the Netherlands, the debate over the ECB, like that over the Greek bail-out, feeds into citizens' sense that they have lost control. "Voters feel powerless," says Frank van Dalen, a political consultant. "The general signal is 'stop'." ■

Savvy savers

Saving as % of household disposable income



Source: ECB



Chernobyl 30 years

Soviet apocalypse

PRIPYAT

A nuclear disaster that caused many deaths, including that of the Soviet Union

“MY MOTHERLAND is the Soviet Union,” reads a sentence written in cursive script in one of the exercise books scattered on the floor of an abandoned school in Pripjat, a Soviet-era ghost town in Ukraine next to the Chernobyl nuclear plant. The town, built for the plant's workers and their families, was evacuated on the afternoon of April 27th 1986, some 36 hours after the worst nuclear-power disaster in history. Today Pripjat is being reclaimed by nature and tourists. What were once streets have become forest paths. Concrete blocks of flats decorated with Soviet symbols and slogans are barely visible through the trees.

Some 200 pensioners eventually returned to villages in the area, but Pripjat itself remains dead, a Soviet Pompeii. Tourists and journalists stroll past rusting propaganda stands, taking photographs of scattered gas masks, clothes, toys and textbooks in abandoned schoolrooms. Some may have been positioned there deliberately by tour organisers.

Chernobyl is also a monument to the extinction of Soviet civilisation. The KGB had been secretly warning Soviet leadership about safety breaches and the reactor's flaws. At 1.23am on April 26th, during a test of the system, a power surge caused a steam explosion that blew off the roof of the reactor and set off a graphite fire. The explosion led to the release of 400 times as much radioactive material as the atomic bomb dropped on Hiroshima. It also blew

the lid from the Soviet propaganda.

The ensuing cover-up was more deplorable than the errors that led to the explosion. Soviet officials did not report the accident. The first information came from Sweden, which detected a rise in radioactivity. While firefighters were heroically trying to put out the blaze, receiving deadly doses of radiation, children in Pripjat played football on the streets and couples celebrated weddings outdoors.

Only on April 28th did the government make a 15-second statement on the evening news. On May 1st hundreds of thousands of ordinary people attended a May Day parade in Kiev, where radiation levels were several-fold higher than normal.

Instead of providing information, the Soviet propaganda machine was busy battling the foreign media. Moscow News, a propaganda sheet published in a dozen languages, ran an article headlined “A Poisoned Cloud of Anti-Sovietism”. It denounced “a premeditated and well-orchestrated campaign” aiming to “cover up criminal acts of militarism by the USA and NATO”. Foreign journalists were prevented from travelling to Ukraine. The KGB classified all information, not only about the disaster but about the illnesses caused by it. Forty-one men died as a result of the explosion and the meltdown of the reactor; a WHO study ultimately found it had caused about 4,000 premature deaths.

The symbolism went far beyond the accident itself, partly because nuclear power

was more than a utility in the Soviet Union. It was a symbol of technical progress and modernity that was at the core of the communist utopia. The conquest of nature by a new Soviet man was part of the mythology; the town symbol of Pripyat was Prometheus.

Instead, Chernobyl became a symbol of apocalypse. Searching for answers, people turned to the Book of Revelation, which describes a deadly star named Wormwood that would fall from the sky and poison rivers and springs. Some translated Wormwood into Ukrainian eerily as "Chornobyl". Svetlana Alexievich, a Nobel laureate in literature, wrote that two disasters coincided: "a social one as the Soviet Union collapsed before our eyes...and the cosmic one—Chernobyl."

Russia and the Panama papers

The lawyer and the cellist

What links Vladimir Putin's musician chum to a nasty fraud case?

SERGEI ROLDUGIN is a humble cellist who is also one of Vladimir Putin's closest friends. This month the Panama papers, a mega-leak of documents from an offshore law firm, revealed that he owned shell companies through which hundreds of millions of dollars had sloshed. Now the Organised Crime and Corruption Reporting Project (OCCRP), a journalists' collective, claims to have uncovered a link between those companies and one of the biggest fraud cases in Russian history: the Magnitsky affair.

Sergei Magnitsky was a lawyer with Hermitage Capital Management, an investment firm. In 2007 he uncovered the theft of \$230m from Russia's treasury in a tax-refund scam. After accusing police of a cover-up, he was tossed in jail, where he died in 2009. The case became a cause célèbre, and America adopted a law barring entry to officials suspected of involvement in the lawyer's death.

The OCCRP now says it has bank records showing that International Media Overseas, a firm owned by Mr Roldugin, received money in 2008 from another offshore company, called Delco, that it believes is linked to the pilfering uncovered by Magnitsky. Just a few months earlier, the OCCRP believes, Delco had received a large payment from a web of opaque firms used by Russian officials and an organised-crime gang to siphon away the money from the tax scam.

Mr Roldugin has previously told Russian media that the money in his firms came from donors and was used to buy expensive musical instruments. He could not be reached for comment. But if the documents seen by the OCCRP are

As Mikhail Gorbachev, the last Soviet leader, reflected years later, the meltdown, "even more than my launch of *perestroika* [restructuring], was perhaps the real cause of the collapse of the Soviet Union". It was a catalyst for *glasnost*, the opening up of the media. As a transcript of a Politburo meeting after the meltdown shows, Mr Gorbachev was furious over his limited access to information: "Everything was kept secret from the Central Committee. The whole system was penetrated by the spirit of boot-licking, persecution of dissidents, window-dressing and nepotism." Mr Gorbachev believed that to renew the Soviet system, he had to open up the channels of information. Within weeks *glasnost* began in earnest, undermining the pillar on which the system rested: lies. ■



Magnitsky won't go away

genuine, it would appear that Mr Putin's old pal received cash from the same network used in one of this century's most egregious swindles.

The possible link between the Magnitsky case and Mr Roldugin has been big news in the West and among Russia's rare liberals. But for most Russians, it will be erased by state propaganda. Dmitry Peskov, Mr Putin's spokesman, has implied that the Panama papers were a CIA provocation.

As though to pre-empt the revelations, Russian state television broadcast a documentary earlier this week alleging that Magnitsky was the victim of a plot hatched by his employer, Bill Browder, an American investor. Co-conspirators supposedly included an anti-corruption campaigner, Alexei Navalny, and, of course, the British and American secret services.

Poland's rightist revolution

Red and white cavalry

WARSAW

The Law and Justice party purges a horse farm, and much else

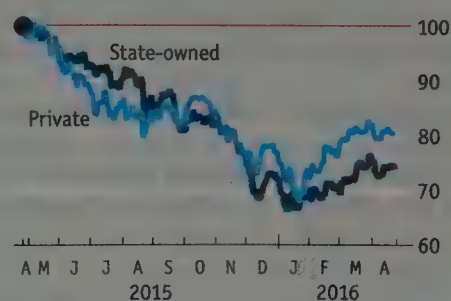
THERE is no evidence that Marek Skomorowski had ever worked with horses professionally before he was appointed to head one of the most elite stables in Poland, a 199-year-old state-owned stud farm in the village of Janow Podlaski. He had a degree in economics; his main credential seemed to be his connection to a small right-wing party allied to the ruling Law and Justice party (PiS), which took power last autumn. The director whom he replaced was an experienced breeder. "The horses haven't succumbed to depression," Mr Skomorowski quipped after taking over the job in February. He spoke too soon. By early April two mares owned by Shirley Watts, the wife of the Rolling Stones' drummer, Charlie Watts, had died. Mrs Watts withdrew her two surviving horses this month, threatening to sue.

The turmoil at Janow Podlaski is part of a wholesale purge of scores of executives at state-owned enterprises (SOEs) carried out by PiS since it came to power. Previous governments have replaced top managers, but not on the same scale. The CEOs of 13 of the 14 SOEs listed on the Warsaw exchange's WIG30 index, including insurance, railway and energy companies, have all been canned. The companies' share prices have fallen noticeably (see chart). Only PKO BP, Poland's biggest bank, has kept its chairman. (Dawid Jackiewicz, the treasury minister, personally affirmed that the bank's CEO could "sleep soundly".) *Rzeczpospolita*, a daily, found that CEO turnover at the most important SOEs over the past year has exceeded 100%.

PiS has already come under fire from the European Union for seizing control of state media and trying to force its appointees onto the constitutional court. In the ►►

Cronyism does not pay

Poland, share price of state-owned enterprises and private companies in WIG30 index
April 2015=100



Sources: Bloomberg; The Economist



Jockeying for political advantage

► state sector of the economy, too, it wants managers who will play along. Appointees need to “identify with the government’s programme”, Mr Jackiewicz told the parliament in March. Loose job requirements leave plenty of room for cronyism: the new CEO of LOTOS Group, an oil company whose chief was axed last week, needs only a master’s degree and five years of professional experience. English is desirable, but not required.

Jaroslaw Kaczynski, Pis’s leader, values loyalty above competence. The government has changed the civil-service law, scrapping competitions for senior jobs and the requirement that appointees must not have belonged to a political party in the past five years. As tensions with the EU escalated in January, Warsaw sacked its permanent representative in Brussels. (In a possible dig, the European Commission has since named him head of its office in

Warsaw.) A former Pis MP was appointed head of the public TV broadcaster. Nearly all the regional superintendents of education have been fired; the new ones include former Pis parliamentary candidates. Last week a former assistant of Beata Szydlo, the prime minister, was named head of the country’s second-largest airport.

Not just horse enthusiasts are irked. The liberal Nowoczesna party has launched an online infographic exposing the web of appointees’ connections, with an anonymous hotline. Moody’s, a credit-rating agency, has warned that the constitutional-court tussle could dent Poland’s attractiveness to foreign investors. It is due to review its rating on May 13th. But by extending its grasp over Poland’s state-controlled companies, which Mr Jackiewicz likened to “sovereign princedoms”, Pis has strengthened its base. Now, cadres in place, it is pushing on with the revolution. ■

Turkey and the EU

Clearing customs

ISTANBUL

Europe’s migrant deal hinges on Turks getting visa-free travel. It may collapse

SERHAN TURKOGLU stands outside one of Istanbul’s many visa-application bureaux, clutching his flight and hotel bookings, travel insurance, proof of employment, social-security registration, recent salary slips and bank statements, and a vehicle licence. Mr Turkoglu, an accountant, needs all of this simply to secure a holiday visa to Spain. For his next European holiday he will have to go through the whole rigmarole again. “It makes you feel like a second-class citizen,” he says.

Turkish diplomacy towards the European Union is focused on obtaining visa-

free travel. It is easy to see why. Turkey has been negotiating to accede to the EU for more than a decade; it is the only candidate country whose citizens still need visas to enter the bloc’s Schengen area. Peruvians, Malaysians and Mexicans, by contrast, no longer need visas to travel there.

Europe’s panic in the face of mass migration from the Middle East has provided Turkey with a new opening. In March, in exchange for a pledge to re-admit thousands of migrants deported from Greece, the EU offered Recep Tayyip Erdogan, the country’s president, €6 billion (\$6.8 bil-

lion) in aid, progress in the moribund membership talks and visa-free travel for his people by June.

To qualify, Turkey must meet 72 benchmarks by late April, from biometric passports to better data-protection. Turkey’s prime minister, Ahmet Davutoglu, claims that his country already meets most of the conditions. But the EU says much more needs to be done. “The criteria will not be watered down,” insists the European Commission’s president, Jean-Claude Juncker.

In fact, it is hard to see how Turkey could meet the political conditions for visa liberalisation. These include bringing its terrorism laws into line with the EU’s, and guaranteeing the rights to assembly and free speech. But for quite some time, Turkey has been restricting political activity and going in the wrong direction on human rights.

The government is prosecuting a group of academics on terrorism charges, after they signed a petition to end a crackdown against the Kurdistan Workers’ Party (PKK) that has raged in Turkey’s south-east since last year. Two journalists face life in prison for reporting on covert arms shipments to Syria. Last week a Dutch columnist was detained and barred from leaving the country pending trial; her offence was a profane tweet and an article calling Mr Erdogan a “dictator”.

If the commission agrees that Turkey meets the benchmarks, on May 4th it will recommend that the EU’s 28 governments (as well as the European Parliament), approve visa-free travel for Turkey. In theory this could be done by a qualified-majority vote; in practice, rejection by a large country would torpedo the deal. Far-right anti-Muslim parties are surging in many parts of the continent. With Marine Le Pen looking stronger in the run-up to France’s presidential election in 2017, notes Marc Pierini, a former EU envoy to Turkey, “France cannot afford to vote yes” to visa-free travel.

Turkish officials warn of a diplomatic train crash if they do not get their way. The first victim would be Europe’s migrant deal. “If the EU does not keep its word, we will cancel the readmission agreement,” the country’s foreign minister, Mevlut Cavusoglu, said recently.

On April 27th the French and Germans proposed strengthening safeguard mechanisms in the visa process, so that it could be suspended in the event of a large number of visitors who exceed the 90-day limit. That might be one way to avert a collision. Another, says Cengiz Aktar, a scholar at the Istanbul Policy Centre, a think-tank, is to play for time. “The EU can say that there’s been progress, but that some things are missing, so let’s revisit this in the autumn,” he says. Turkey and the EU are accustomed to kicking the question into the long grass. Mr Turkoglu, like other Turks forced to queue for visas, may have a long wait ahead of him. ■

Charlemagne | Trading places

What the aversion to global trade says about Europe and America



FORGET left and right. These days, it is often said, the real dividing line in politics is between open-door liberals and pull-up-the-drawbridge nationalists. Like most grand claims, this one can be overdone. But the pummelling that international trade is taking on both sides of the Atlantic suggests there is something to it.

Nigel Farage and Marine Le Pen—leaders of right-wing populist parties in, respectively, Britain and France—sound like the far left when they dismiss deals such as the Transatlantic Trade and Investment Partnership (TTIP), a proposed agreement between the European Union and America, as stitch-ups that favour only big corporations. In America, Donald Trump's pronouncements ("It's not free trade, it's stupid trade") resemble those of Bernie Sanders, the "democratic socialist" who is slowing Hillary Clinton's path to the Democratic presidential nomination.

Why has trade become the *piñata* of politics? Partly because it fits the anti-elite mood. Trade deals are cooked up behind closed doors by obscure bureaucrats. Negotiating positions are hidden from voters. The economic changes wrought by technology and competition should perhaps shoulder more of the blame for job insecurity. But it is easier to rail against the hand of a politician who signs a trade deal than the invisible hand of globalisation.

So far, so transatlantic. But there are telling differences between Europe and America. In the EU, opposition to TTIP is at its sharpest in Germany and Austria, two export powerhouses with low unemployment. The thousands of protesters who rallied in Hanover last weekend, as Barack Obama rolled into town to instil energy into the flagging talks, or the Dutch campaigners gathering signatures to put TTIP to a referendum, fulminate not against lost jobs but greedy multinationals and the lower food and environmental standards they believe the deal will bring.

But in America the anti-trade message resonates most in post-industrial regions that lost out from NAFTA, a trade deal struck in the 1990s with Canada and Mexico, as well as the accession of China to the World Trade Organisation in 2001. This led to huge job losses as American firms struggled to compete with cheap imports. In his Hanover speech Mr Obama acknowledged that governments must do more for globalisation's losers.

Why the difference? Pascal Lamy, who served as the EU's trade commissioner before running the WTO from 2005 to 2013, distin-

guishes between the "old" and "new" worlds of trade deals. The old world, dominated by national producers, was about opening markets and cutting tariffs. The new one aims to reduce differences between sets of national or regional rules that hinder trade in a world of transnational production and long supply chains. In the old world, trade negotiators battled producers who sought protection from international competition. In the new, officials must contend with consumers who fear that the domestic standards they cherish will be watered down.

Ironically, it is the Old World that is grappling with these fresh challenges first. For now, America's gaze remains fixed on a not-yet-ratified Asian trade deal, and the fears of a new flood of cheap imports. The controversy over TTIP in Europe, by contrast, is about standard-setting and regulatory co-operation. To that extent the protesters have understood its significance better than the European Commission, which is negotiating the deal with America, or the EU governments that sought it in the first place. The politicians' attempts to sell TTIP were hopeless from the start; many thought a deal with an advanced economy would be free of rows about labour standards. But the economic gains are highly uncertain, given the difficulty of modelling such a complex "new-world" deal. Transparency concerns were ignored. All this allowed TTIP's opponents to build up their own narrative, one often untroubled by factual accuracy.

EU officials say the protests have sharpened their minds. As America does with the Asian deal, the commission now emphasises the strategic value of TTIP in setting standards that much of the rest of the world will be obliged to follow. It has also tried to channel public concern into the negotiations. After an outcry over a provision in TTIP that would allow investors to sue governments, for example, the commission issued a revised proposal. The Americans remain sceptical.

Such delicate manoeuvring is best done by elected politicians. But while Angela Merkel, David Cameron and Matteo Renzi all profess support for TTIP, none has invested much energy in convincing voters. In Austria leaders compete to see who can sound most opposed. In Britain, free-traders on either side of the June Brexit referendum are distracted by an argument over who could best reach a deal with America. All have left the hard work of selling this innovative deal to the bureaucrats of the commission. But without political authority, they struggle to do any more than engage in endless (and fruitless) "mythbusting".

TTIP-toeing towards a deal

Protesters may yet have their way. The TTIP talks are floundering on issues such as public procurement, services and agricultural markets. A breakthrough during a 13th round of talks in New York, held as *The Economist* went to press, looked unlikely. Both sides say the trickiest elements will be left for a final bout of horse-trading in the autumn. But it is hard to see a meaningful deal concluded by the end of the year, the current target. Delay would mean a new American president, a new Congress, a new trade negotiator and quite possibly a new set of priorities. French and German elections next year could also cause trouble. TTIP may have to wait until 2018 or later for ratification.

That would be a pity. The deal would provide a boost to Europe's morose economy. And it would help reassure those who worry that the transatlantic bond is fraying. Right now the EU could do with some good news. The terrain of new worlds demands skilled navigators. But they are nowhere to be seen. ■



Living in London

The grip tightens

Faulty land-use regulation is throttling the capital

AT FIRST glance London looks unstoppable. It is the most important city in Europe, perhaps the world. In the past decade its economy has grown twice as fast as Britain's and its population 50% faster. Scratch the surface, however, and its situation looks less good. The motor of the British economy is becoming less productive and more unequal. The fundamental problem is how land is used and regulated.

Over the last full economic cycle, from 1993 to 2008, the cost of a hectare of residential land in London increased by over 300% in real terms, to more than £8m (\$15m). Commercial-property prices rocketed up too. Now less-productive industries are moving out. The supply of floor space put to industrial uses such as factories and warehousing has fallen by half in the past five years, suggest data from JLL, a property firm. And London's population is becoming more skilled. Over the past decade, the proportion of people with university degrees has increased much more quickly inside the capital than outside it.

Economists might welcome a shift from low- to high-value industries, but property prices threaten its continuance. Academics say they have been forced to move out of town. The share of employed people in inner London working in professional scientific, research, engineering and technology jobs has fallen from 6.6% to 5.4% since 2011. Public services struggle. "It's almost impossible to hire young teachers who don't live with their parents," says one head. And it is not just young teachers who are throwing

in the towel: between 2011 and 2014 the number of twenty-somethings fell by 3%, reversing long-term growth.

Those who cling on in the city do so at a cost. Between 2008 and 2014, Londoners' disposable income (ie, after housing costs) fell by 4%, a steeper decline than in any other part of England (see chart on next page). According to the Centre for London (CFL), a think-tank, the disposable income of private renters in inner London dropped by 28% between 2001 and 2011.

But while most Londoners struggle, some are thriving, in particular homeowners. Income inequality has risen faster in London than in Britain as a whole over the past decade. This is bad for the city. Costly rents and mortgages transfer wealth from poorer people, who tend to spend what they have, to richer folk, who save it. As a result there is less demand to support the economy. Decreasing diversity is another loss: if different sorts of people do not cluster together, they cannot exchange ideas and innovations so readily. In 2012 and 2013 productivity per worker fell in London, though it rose in the rest of the country. The share of total employment that comes from startups is falling, and small firms are now closing at a faster rate than more established outfits.

Poor land-use regulation is the main reason for London's crazy prices. Two problems stand out. First, not enough space is given to new development. About 25,000 homes were built in 2015, half of what was needed. Over one-fifth of London's land is

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"green belt", open space encasing the city that is largely off-limits to developers. People imagine that green belts are pleasant spaces for walking dogs. In reality about 7% of London's green belt consists of golf courses. Over half is agricultural.

There is enough green-belt land in Greater London to build 1.6m houses at average densities, says Paul Cheshire of the London School of Economics (LSE)—about 30 times the number of new houses London needs a year. But opposition from homeowners is strong—especially from those near the green belt, who do not much like the thought of newcomers bringing down property prices. Today, though approved applications to build on it have risen a bit, the green belt is virtually as big as it was in 2007. Many argue that developing brownfield land (land previously used for some industrial purpose) would solve London's problems. Research by Nathaniel Lichfield and Partners, a consultancy, however, concludes that brownfield sites could accommodate less than half of the homes required up to 2030.

A plethora of other regulations also block development. By one count there are ten protected views of St Paul's Cathedral, including one from a specific oak tree on Hampstead Heath. This imposes severe restrictions on building height across the city. Population density in central London is about half New York's. According to Mr Cheshire and Christian Hilber, also of the LSE, restrictive planning policies inflate the price of office space in the West End by about 800%. A square foot there is twice as expensive as in midtown Manhattan.

Councils might get rid of the barmiest rules were it not for the second problem: taxation. Council tax, levied on housing, is collected by local governments. The prospect of broadening their tax bases should spur councils to allow more building.

Not a bit of it, argues Mr Hilber. Residential property taxes are lower in Britain than

in other countries, so housing developments create little additional revenue. Worse, the way the central government doles out grants to councils more or less eliminates any extra revenue in the medium term for local authorities that allow more development. And the cost of the additional infrastructure that building makes necessary—roads, schools and the like—is rarely met by central government, he says.

Help is on the way, maintains the government. Londoners may soon be allowed to add storeys to their home if an adjoining building is taller. It has also become easier to convert offices into dwellings. But other new policies will discourage homebuilding. From 2020 councils will have full control over business rates and receipts, which will lead them to prefer commercial development, points out Mr Hilber.

As Londoners prepare to choose a new mayor on May 5th, London's property woes have never loomed so large. Unfortunately, neither of the leading mayoral hopefuls—Sadiq Khan, the Labour candidate, and the Conservatives' Zac Goldsmith—is brave enough to propose a serious solution. Both have pledged to preserve the green belt, and their other plans amount to little more than tinkering.

So prices will probably continue to rise—unless Britons vote on June 23rd to leave the European Union, and demand for London property withers. The economy will slow as rent takes a bigger chunk of pay and earnings. Skilled people will move to jobs in less productive places, thus earning less. A recent paper by Chang-Tai Hsieh of Chicago University and Enrico Moretti of the University of California, Berkeley suggests that tight land regulation in America may have reduced GDP by more than 10%. A similar, perhaps larger, effect is likely in Britain. Unless London's property market can be sorted out, people across the country will bear the brunt. ■

Housing paupers

Britain, net household income
% change 2008–14, 2013–14 prices



Source: Resolution Foundation



Brexit brief

How others see it

BRUSSELS

The European Union would suffer from Brexit—which is why it could not be kind to Britain afterwards

MOST of the Brexit debate has been about its effect on Britain. But a British departure would also have a profound impact on the European Union. And that would affect how others approach negotiations with a post-Brexit Britain.

For the EU, a vote for Brexit on June 23rd could hardly come at a worse time. The club is in trouble. The euro crisis is not over, with growth slow, youth unemployment high and Greece again in difficulties. The recent fall in the flows of refugees across the Mediterranean may prove temporary. Many leaders, including Germany's Angela Merkel, seem politically weakened.

The longer-term effects of Brexit would also be serious. The EU would lose much prestige from the exit of one of its biggest members. Britain is one of the few EU countries with real diplomatic and military clout. Brexit would also upset the balance of power, leaving more naked both German hegemony and French weakness. And it would make the EU less outward-looking. As the Centre for European Reform, a London-based think-tank, notes in a new report, a British departure would leave the EU "less liberal, more suspicious of science and more protectionist". That could hurt hopes of new trade deals, notably with America. Jan Techau of Carnegie Europe, a think-tank in Brussels, says Brexit would be bad for transatlantic relations, in which Britain is a key intermediary.

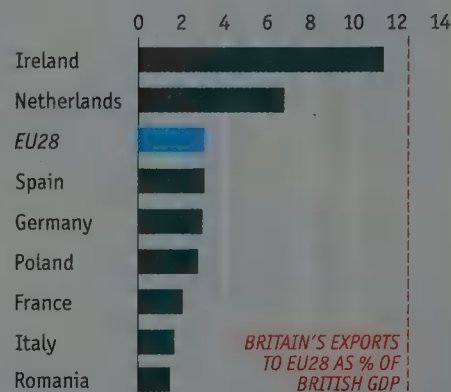
All this means other EU countries will see Brexit as a hostile act meriting a firm response. Diplomats avoid crude talk of punishment, but they also see a need to avert any risk that Brexit could encourage others to leave. Euroscepticism has grown in most countries and so have populist parties, many of which openly back Brexit. Marine Le Pen, leader of France's National Front, even plans to campaign for it in Britain.

The new deal that David Cameron won in February may have been dismissed at home as trivial (and it barely features in the referendum campaign). But in Brussels many saw it as giving in to a blackmailer threatening to walk out. Michael Emerson, a former Eurocrat now at the Centre for European Policy Studies, another Brussels think-tank, also stresses Europeans' aversion to Britain's cherry-picking the bits of the EU to which it deigns to belong.

To most Brussels hands, that means there can be no question of giving a post-Brexit Britain full access to the EU's single market while letting it escape the EU's rules

Not a lot of leverage

Exports to Britain, 2014, % of GDP



Sources: ONS; Eurostat; HM Treasury

and the free movement of people. As one diplomat puts it, the other countries simply have to show that Brexit doesn't work.

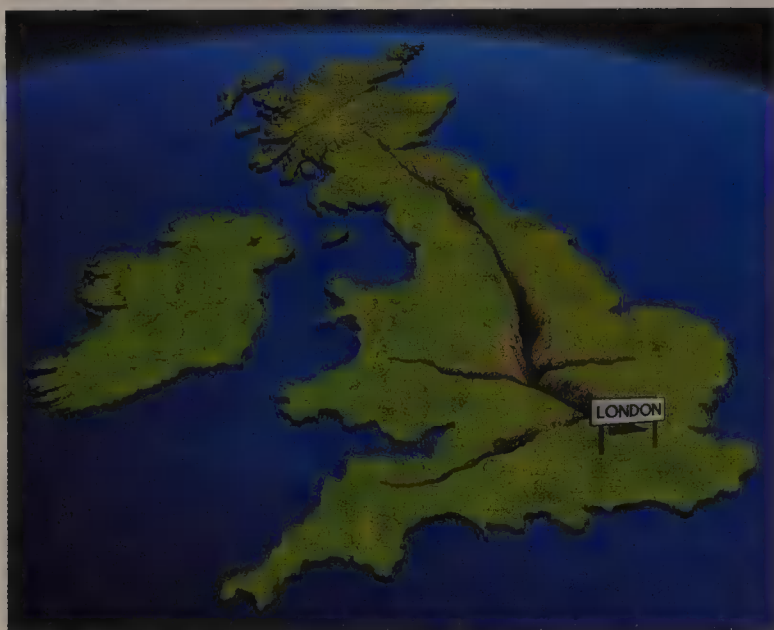
Brexiters retort that, since the EU sells more to Britain than the other way round, it has a huge interest in a free-trade deal. German carmakers, it is said, would insist on one. Yet the bargaining clout of the EU is far stronger. For Britain, exports to the EU make up 12.6% of GDP, whereas for the EU, exports to Britain are only 3.1%. And for many countries, all of which would have to ratify a new trade deal, the ratio is smaller still (see chart). Take Romania: its exports to Britain are worth only 1.5% of GDP, and it may also be asked to accept curbs on migration if Britain leaves. Romania is threatening to veto an EU-Canada trade deal because of Canadian visa restrictions.

A final consideration for the EU is the need to show, post-Brexit, that the European project can still go forward. An obvious way to do this would be to relaunch the euro zone's movement towards closer integration. In Brussels many predict a new Franco-German initiative after June 23rd, whichever way the vote goes. It may not get far as there is little agreement on what deeper union should entail. But it could still discomfort Mr Cameron, who likes to claim that the high-water mark of European integration has passed.

A Brexit vote would also come at a testing political time for Europe. Elections loom almost everywhere: in Spain three days after the referendum, in France, Germany and probably Italy next year. And in a final irony, Britain is due to take the rotating EU presidency in the second half of 2017—just when post-Brexit negotiations could be at their most intense. ■

Bagehot | 2030 vision

London's mayoral election offers glimpses of Britain's future political fault-lines



LISTEN carefully to British politics these days and you can hear the old party order creaking. With the EU referendum looming, hybrid alliances are emerging: Labourites, Liberal Democrats and Conservatives share pro-EU platforms while Tories and UKIPers rub shoulders in the Leave campaign. Elections in Scotland on May 5th could put the Conservatives there within inches of becoming the leading party against Scottish independence. That same day council elections in England may see UKIP surge in the Labour north.

Nowhere encapsulates the growing gulf between the traditional left-right spectrum and the reality of modern Britain better than London, where the election to succeed Boris Johnson as mayor also takes place on May 5th. There, it is true, the two main parties are in fierce battle: Sadiq Khan, a fast-talking Labour politician, is comfortably ahead in the polls, though he might succumb to Zac Goldsmith, his patrician Tory rival, if he fails to turn his voters out on the day. But what they argue about—and what they do not—is striking. On subjects that usually define the party-political divide, they agree. Both have campaigned as market liberals: enthusiastic about the City and opposed to tax rises. That has put Mr Khan at odds with his party leaders. Both are liberals on migration and on law-and-order measures like stop-and-search, too. That has driven a wedge between Mr Goldsmith and Tory higher-ups.

At a succession of hustings over the past months, the two have fought on their own metropolitan battlefields. The first concerns London's exploding population. Mr Khan wants to freeze transport fares and expand Gatwick airport. Mr Goldsmith wants to increase fares to fund investment and is a conservationist. Their second and most blood-flecked arena concerns cultural politics. Mr Goldsmith is for Brexit, which might help him in outer boroughs like Havering, considered by one study the most Eurosceptic part of the country. Mr Khan has accused him of thus "jeopardising our city's prosperity" and undermining the ability of Londoners from other EU states to stay in the city.

But nothing has inflamed debates between the two more than Mr Goldsmith's dark suggestions that, by appearing at nine events along with Suliman Gani, a hardline imam, his rival has given cover to extremists. Mr Khan retorts that, as a civil-rights

lawyer and a prominent Muslim, it is only natural that he should have crossed paths with such types. He points out that he endured verbal abuse from Mr Gani—and death threats from others—for supporting gay marriage. Mr Goldsmith's attack appears to be part of his energetic pitch for Hindu and Sikh votes; he has also circulated leaflets promoting his efforts to protect the Harmandir Sahib, the Sikh holy site in Amritsar, and his recent encounter with Narendra Modi, the Indian prime minister.

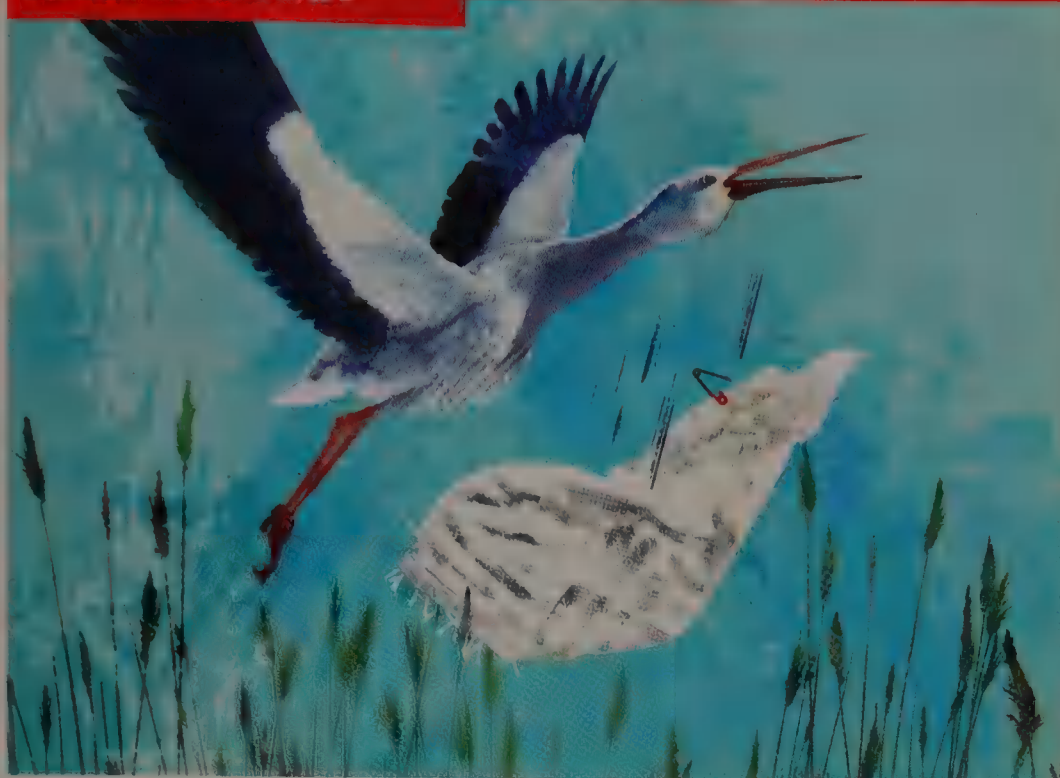
That these dividing lines, rather than conventional ones like tax, crime and immigration, dominate London's election is partly because the mayor has few powers. But the capital's strangeness provides a fuller explanation. It is a melting pot with a hyper-liberal centre, a nativist periphery and a bias towards free trade and enterprise. The city has moved beyond left-versus-right to battles over space, logistics and cultural values. These altered its two modern mayors—Ken Livingstone, an old-school lefty, and Boris Johnson, a fairly conventional Tory.

Yet in truth London is less strange than avant-garde. Where it goes, the country follows. For on the subjects that currently dominate national elections, Britain is moving in London's direction. According to research by Ipsos MORI, a polling firm, Britons are becoming more pro-market, more comfortable with their multi-ethnic society and more relaxed about immigration. Such issues, in other words, will become less salient determinants of political identity nationwide. But those that now interest Londoners are on the rise. For example, the capital's obsession with infrastructure will soon define politics across the country. As the population booms (Britain is expected to grow from 65m today to 77m by 2050), and especially if productivity continues to stagnate, debates about how investment in road, rail and broadband should be financed and allocated will intensify. All this will be part of a broader contest: the quest for space. As more people pile into a small number of big cities (and a handful of smaller but dynamic ones like Cambridge), ever-larger chunks of the population will be sucked into debates like those currently raging in London, about how sought-after land—and if the capital is anything to go by, skylines and basements too—should be carved up to give each person the space to work, travel and live.

All the faraway towns

Meanwhile more regions of the country will exhibit within their borders London-like extremes of liberalism and nativism. The divide between, say, Islington and Havering will increasingly be replicated elsewhere as Manchester, Leeds and Birmingham soar ahead of their peripheries. The politics of Britain will be transformed as non-whites constitute an ever-larger share of the population. Already Labour's political monopoly of such voters is breaking down, as ethnic-minority Britons move out of the city centres into middle-class suburbs: Labour's lead over the Tories among ethnic minorities fell from 52 points in 2010 to 19 in 2015. The old ideological battles are giving way to struggles over specific ethnic and religious groups; the Conservative lunge for Hindu and Sikh support may be a sign of things to come.

These developments have one thing in common with the shifting political alliances over the EU, in Scotland and across the English regions: they cut across the traditional left-right divide. The obvious answer is for bits of existing parties to break off and coalesce into new coalitions of interest and outlook. When this will happen is unclear: British politics is institutionally conservative. But heard from London, the creaking is getting louder. ■



Demography

The strange case of the missing baby

As the financial crisis hit, birth rates fell in rich countries, as expected. But a persistent baby bust is a real puzzle

HE IS not exactly leading by example, but Pope Francis wants more babies. "The great challenge of Europe is to return to being mother Europe," he said last year, while suggesting that young people might be having too few children because they preferred holidays. Europe certainly lacks young souls, particularly in Catholic countries such as Italy and Spain. But the baby shortage is broader: mother America and mother Australia have gone missing, too.

They were certainly present a decade ago. Although birth rates were low in the former communist countries of eastern Europe, and in traditionalist places where it is hard to combine work with motherhood—think Japan, South Korea and southern Europe—many countries were having a baby boom. In the decade to 2008, the total fertility rate (the number of children a woman can expect to have in her lifetime based on present patterns) rose in much of the rich world. In Britain it went up from 1.68 to 1.91 (see chart 1); in Australia from 1.76 to 2.02; and in Sweden from 1.5 to 1.91. America even managed to reach the "replacement rate" of 2.1, meaning its population was sustaining itself, without taking migration into account.

There were two reasons, says Tomas Sobotka of the Vienna Institute of Demography. First, women who had delayed having children while they studied and started careers hurried to the maternity wards



while they still could. Births to women in their 30s, which had been rising gently for years, went up further in Norway and elsewhere (see chart 2). Second, fertility among women in their 20s stopped falling.

The financial crisis abruptly turned the boom to bust. Countries in the European Union delivered 5,469,000 babies in 2008 but only 5,075,000 in 2013—a drop of over 7%. That was too much for Kimberly-Clark, the maker of Huggies nappies, which announced in 2012 that it would pull out of most of Europe. In America the fertility rate fell from a peak of 2.12 in 2007 to 1.86 in 2014. Ken Johnson, a demographer at the University of New Hampshire, estimated that America was missing 2.3m babies.

Also in this section

56 Fecund foreigners?

The crunch was unsurprising: anxiety about jobs and money puts people off children. But a rich-world baby bust that began predictably turned into a puzzle.

Fertility rates have fallen in countries with woeful economies, such as Greece and Italy. But they have also fallen in countries that sailed through the financial crisis, such as Australia and Norway. Although the American baby bust was expected, the lack of recovery after seven years seems odd. "I was fairly confident that women were just delaying births, and that we would see a rebound," says Mr Johnson. "I'm beginning to wonder now." In Britain the drop came late: the fertility rate fell from 1.92 to 1.81 between 2012 and 2014. Then there is France, where couples looked at the economic slump and shrugged. The fertility rate there has barely moved.

If some of the international trends are hard to fathom, so is the strange uniformity within countries. Trude Lappegard, a Norwegian demographer, says that her country's baby bust, which has been going on for six years, might be easy to explain if it had hit one group especially hard. Instead, women of all ages and all levels of education are having fewer children.

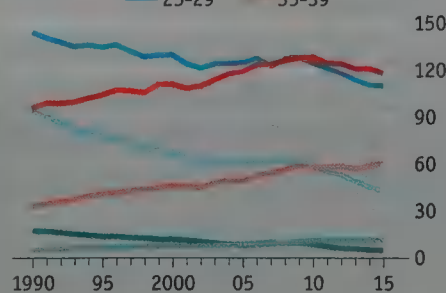
One possible explanation is that immigrants are not boosting birth rates much these days, and might even be dragging them down (see box on next page). Some demographers suggest that cuts to welfare might have made poor mothers warier of having children. But that does not explain the behaviour of middle-class women.

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Now or never

Norway, live births per 1,000 women

By age group

 15-19 20-24 30-34 40-44
 25-29 35-39


Source: Statistics Norway

- And family support has actually become more generous in some countries with falling fertility.

Ann Berrington of Southampton University points to housing. Young and even not-so-young couples find it hard to buy property in England and Wales: 46% of 25- to 34-year-olds lived in private rented accommodation in 2014-15, up from 24% a decade earlier. Four in ten 24-year-olds still live with their parents. Home-ownership rates have fallen in America and Australia, too. The rate is rising in France, where fertility has held steady—though that might be thanks to strong pro-natalist policies.

You can have a baby in a rented flat, of course. But in a country like Britain, where earlier generations found it easy to buy homes, that seems to flout a psychological rule for some. In the 1960s Richard Easterlin, an American economist, suggested that people would avoid having children if they felt unable to bring them up in a style that at least matched the way they were raised. It might be time to dust off that idea.

Some couples could be delaying having babies not because they cannot afford them, but because of a vague feeling that family life is harder than it used to be. A Pew poll of 11 rich countries last year found that 64% believe that today's children will be worse off than their parents. Perhaps the gloom has spread even to countries with strong economies. Mr Sobotka suggests that Scandinavians could have overreacted to repeated news reports about hard times elsewhere in Europe. "It gets below people's skins," he says.

In this, childbirth might be a little like politics. When a surly, anti-politics mood first took hold in Europe and America after the financial crisis, it was tempting to think it would dissipate as economic growth returned. Today Donald Trump is the probable Republican presidential nominee in America, the National Front is rampant in France and the British government is fighting both Scottish separatism and Europhobia. Bad moods can linger.

Whether and when birth rates bounce back, and how high, has broad consequences. America's Census Bureau simply

Immigrant fertility

Fecund foreigners?

DUISBURG

Immigrants do less to raise birth rates than is generally believed

FOR a Turkish woman ready to start a household, Weseler Strasse in Duisburg is a one-stop shop. There, in the shadow of an enormous steel works, are dozens of stores selling wedding dresses and glitzy tuxedos; jewellery and home furnishings. What this stretch of Weseler Strasse does not contain is a baby shop.

In the early 1980s women with foreign passports in Duisburg had a birth rate much higher than native Germans (see chart). Most of the foreigners were Turks, who had settled in this Ruhr Valley city for its industrial jobs and brought their big-family culture with them. But then came an astonishing drop. Today foreigners are actually slightly less fertile than natives. That is saying something: German women in Duisburg, and in Germany as a whole, do not have nearly enough babies to keep the population ticking over naturally.

Xenophobes and xenophiles share a belief in the fecundity of newcomers. "Immigrants are more fertile," explained Jeb Bush, an erstwhile American presidential candidate (and xenophile) in 2013. "They love families and they have more intact families, and they bring a younger population." That is still just about true in America, but the gap is vanishing.

Between 2006 and 2013 the fertility rate among Mexicans in America fell by 35%, compared with a drop of 3% among non-Hispanic whites. In the Netherlands, the immigrant fertility rate is now almost exactly the same as the native one. Even in Britain, where a quarter of births are to immigrants, statisticians reckon that immigration has raised overall fertility by a mere 0.08 children per woman.

The fertile immigrant is partly an illusion. Women tend not to move country with babies in tow, explains Gunnar Andersson of Stockholm University: they travel first and then have a child quickly. That makes them seem keener on babies than they really are. Partly, too,

assumes that current fertility rates will persist. Since 2008 it has slashed its prediction for the country's population in 2050 from 439m to 398m. If lower fertility lasts, it would help balance government accounts in the short term, because there would be fewer children to educate, but hurt in the long term. A fertility rate of 1.8 would mean twice as large an annual social-security deficit by 2089 as one of 2.2, as a percentage of the social-security tax base.

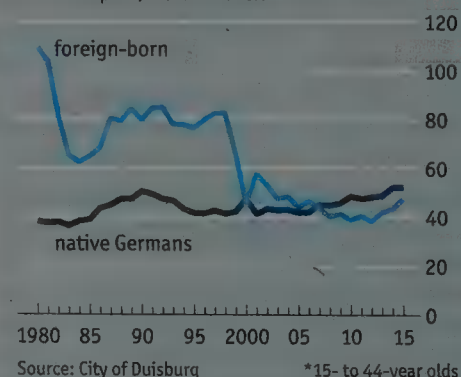
A persistent slump would also be bad

the countries that send migrants to the rich world have changed, points out Michael Teitelbaum, a demographer at Harvard Law School. Fertility rates have plunged in both Mexico and Turkey, from more than six children per woman in 1960 to less than three today. Grandma in Oaxaca is probably no longer pushing her emigrant daughter to have a third.

But the big reason immigrants' birth rates are falling is that they tend to adopt the ways of the host communities. This happens fast: some studies suggest that a girl who migrates before her teens behaves much like a native. Acculturation is so powerful that it can boost birth rates as well as cut them. In England, migrants from high-fertility countries like Nigeria and Somalia have fewer babies than compatriots who stay put. Those from low-fertility countries such as Lithuania and Poland have more.

Christine Bleks, who runs a children's charity near Weseler Strasse, points to the front gardens of houses around Duisburg's large mosque. They are small and orderly, with neat hedges and kitsch ornaments. The style is stereotypically German, she says. But the owners are mostly Turkish. As with gardens, so with families: immigrants have gone native.

Fitting in

 Duisburg, Germany
 Live births per 1,000 women* to:


Source: City of Duisburg

*15- to 44-year olds

news for nappy-makers. But the overall effect on the market for baby gear might be surprisingly slight. Marcus Tagesson, the boss of Babyshop, a Stockholm-based retailer, says that the important thing is that couples have at least one child. The first baby is the most profitable, he explains. Parents want everything to be new and perfect; besides, they make mistakes with their first-born that they do not repeat. Such as? "White clothes," says Mr Tagesson, a little ruefully. ■



China's consumers

Still kicking

BEIJING

Despite China's economic slowdown, consumption is resilient

IF YOU believe that China's economy is in trouble and that Chinese consumers are clinging tightly to their yuan, a visit to a local car dealership may make you think again. China has roared past America already to become the world's biggest car market. In March sales of passenger cars zoomed again, by nearly 10% year on year. Shiny sport-utility vehicles (SUVs), the hottest, shiniest items at this week's biennial Beijing Auto Show (pictured), did even better: sales jumped by 46% in March from a year earlier. The car market is forecast to keep growing briskly for the rest of this decade (see chart on next page).

The Chinese consumer is flashing his wallet elsewhere, too. China's box-office revenues shot up by nearly 50% on a year earlier in 2015, to \$6.8 billion. Cinema operators led by Wanda Group, an ambitious local conglomerate that recently bought Hollywood's Legendary Entertainment, have poured money into expansion; the number of screens across China has been rising at 36% a year since 2011.

After years of expansion, the smartphone market is peaking. Some firms still thrive: China's Huawei, a telecoms giant, predicts that revenues from its consumer-devices division will rise by about 50% this year. But Xiaomi, an innovative electronics firm once seen as China's answer to Apple, is losing steam. Apple itself announced weaker results on April 26th (see page 60). Revenues from sales in greater China fell by

26% year on year. As the market for devices matures, however, consumer spending is shifting to services: data usage has grown at triple-digit rates since 2012.

The unrelenting march of e-commerce continues. In 2010 online shopping accounted for only 3% of total private consumption, but it now makes up 15%. Alibaba, which processes more sales on its e-commerce platforms than eBay and Amazon combined, saw annual Chinese revenues grow to 63 billion yuan (\$9.7 billion) in 2015, a rise of nearly 40% compared with a year earlier. JD, its main local rival, saw revenues leap by nearly 58%.

Chinese are still spending heavily abroad. Their international tax-free shopping shot up 58% last year, according to a new report from Global Blue, a big operator of duty-free shops. Overall, Chinese tourists spent \$215 billion on outbound travel last year, a rise of 53% on the previous year. Ctrip, a big online travel firm partly owned by Baidu, a Chinese internet search giant, saw its revenues jump by nearly half last year, to 10.9 billion yuan.

As with cars, screens and travel, so with consumption generally. All retail sales across the economy, adjusted for inflation, rose by 9.6% during the first quarter, compared with the same period a year ago. The services sector, which caters to the growing demands of the middle class, has been rising by 8% a year in real terms since 2012 (see chart on next page). Services made up 57%

of economic output in the first quarter; electricity consumption in services rose by some 10%, but was flat for industry.

Not every market is as bouncy as it once was. A cooling economy and an official anti-corruption drive have squeezed luxury goods, sales of which fell by 2% year on year in 2015, to 113 billion yuan. But some firms are doing well. Rémy Cointreau, a premium liquor brand offering tamper-proof bottles on the mainland ("near field communications" tags tell your smartphone if the booze has been diluted), saw global revenues rise by nearly 10% last quarter and credited "improving trends in greater China". According to Bernard Arnault, the boss of LVMH, a luxury goliath: "Analysts underestimate the Chinese economy... the fundamentals are good. Household spending is still increasing."

The two Chinas

Can consumption remain resilient given the troubles of the country's state-dominated industrial economy, ranging from vast overcapacity to record levels of debt? One temporary source of comfort is the fact that the state sector may now itself be stabilising, thanks to a massive, debt-fuelled government stimulus. But greater reassurance comes from the fact that even a big shake-out in heavy industry would be unlikely to derail the Chinese consumer. By one estimate, if 30% of capacity is slashed across China's most bloated state industries, perhaps 3m workers will lose their jobs over the next three years. But thanks largely to the private sector, the country created 64m jobs between 2011 and 2015, with more than 13m emerging in the past year alone.

The dynamism of the mostly-private consumer sector comes not from stimulus, argues Andy Rothman of Matthews Asia, an investment firm, but from strong income growth and low household debt. ►►

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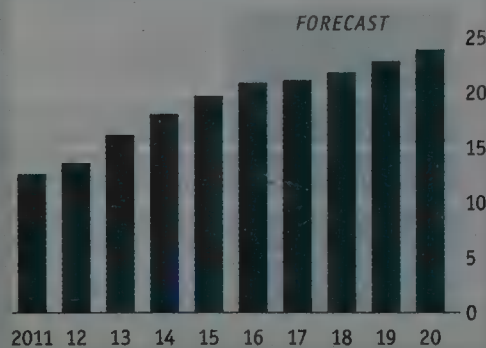
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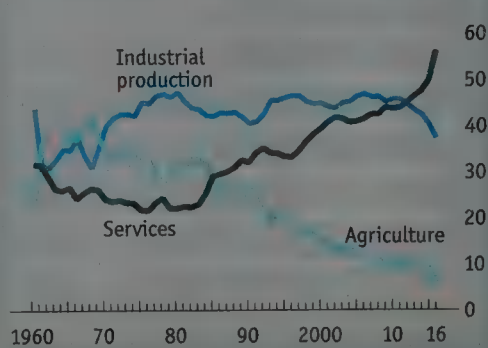
Still spending

Passenger vehicle sales in China, m



Sources: IHS; CEIC

Share of GDP by sector, %



► (Chinese household debt stands at about 40% of GDP, roughly half the level seen in America.) Real urban incomes rose by 5.8% in the first quarter. Willis Towers Watson, a consultancy, estimates that white-collar salaries are now significantly higher in China than in South-East Asia. That fuels a bristling optimism. A recent study by McKinsey, a consultancy, found that 55% of consumers in China are confident that their incomes will rise significantly over the next five years.

Many big firms seem willing to look past current clouds over China's economy to brighter days ahead. Pepsi, an American snack-food firm, opened its first Quaker Oats manufacturing plant on the mainland in October, and has launched oat-based dairy drinks to cater to local tastes. It even hopes to introduce Pepsi-branded smartphones. McDonald's, an American hamburger chain, wants 1,250 outlets in the mainland over the next five years on top of the 2,200 it operates already.

America's Walt Disney, an entertainment colossus, is set to open Shanghai Disneyland in June. The \$5.5 billion theme park is its biggest investment outside Florida. Keen to experience such wondrous novelties as Peking-duck-topped, Mickey-Mouse shaped pizza, Chinese families are now eagerly snapping up entry tickets online. Starbucks, an American coffee chain, plans to add 500 outlets this year in China, including one at the entrance of the new Disney park. Howard Schultz, its boss, predicts it will be "Starbucks' highest-grossing retail store overnight".

Firms such as these are betting on the continued rise of the affluent middle class. By 2020, the number of households earning above \$24,000 per year is expected to double to 100m, making up 30% of all urban households. They are also betting on the frivolity of the free-spending young. Consumption is rising at 14% a year among under-35s, twice the level of frugal oldies. But above all, they are betting on the law of large numbers. A joint study, by the Boston Consulting Group, another consultancy, and AliResearch, the research arm of Alibaba, predicts that even if economic

growth falls to only 5.5% per year (well below official claims of nearly 7% a year now), China's consumer economy will expand over the next five years by some \$2.3 trillion. Despite the deficiencies in economic forecasts, that incremental gain would be bigger than the entire consumer economy in Britain or Germany today. ■

Car emissions

Exhaustive analysis

The gulf between test results and the real world widens

CARMAKERS have two methods for dealing with the gases that belch from exhaust pipes. One is to reduce emissions of carbon dioxide, nitrogen oxide (NOx) and other nasties by spending heavily to develop cleaner engines. Another is to devise methods to game emissions-testing systems but keep polluting the atmosphere on the road.

Volkswagen and Mitsubishi opted for the second method, using means illegal in some countries. But many other carmakers bend the rules: after vw's deception came to light, for instance, independent tests showed that across the board, official NOx figures in Europe were a far cry from expectations. This persistent gap between test results and what can be achieved in practice undercuts limits imposed by governments to curtail greenhouse gases and air pollution. Enforcement regimes are in need of repair.

Mitsubishi, Japan's sixth-largest carmaker, saw its shares plunge after it admitted on April 20th that it had improperly conducted fuel-economy tests. Its potential punishment in court for 25 years of rule-breaking is, as yet, unclear. The vast complexity of Japan's emissions regime clouds proceedings.

The scandal at vw centres on its development of software that detected the regu-

lar driving pattern of emissions-test cycles and responded by artificially lowering the amount of NOx produced by 11m diesel cars. The German carmaker reached a deal on April 14th in an American court to fix cars, compensate owners and pay fines. The details are not yet public but reportedly vw will buy back around 480,000 cars and give a further \$5,000 to each owner. vw also plans to increase the sum it has set aside this year to help meet the mounting costs of the scandal to a whopping €16.2 billion (\$18.3 billion).

Europeans, who own 8.5m of the cars affected by vw's actions, may not be treated as generously. The firm has offered a recall to adjust the dodgy software but is not planning compensation or a buy-back. Despite admissions of guilt in September vw has since said it is considering whether its software is actually illegal in Europe.

The regulations are "fuzzy", says Nick Molden of Emissions Analytics, a consulting firm. Europe's system relies on a gentle test cycle that fails to replicate how cars are actually driven on the road. Carmakers are permitted to test specially prepared prototypes. Testing agencies compete for business from carmakers by promising to "optimise" conditions. America's system, in contrast, is more robust. Carmakers test their own vehicles. The Environmental Protection Agency subsequently checks their figures using randomly selected production cars. If the numbers diverge it has the power to levy eye-wateringly large fines on firms.

Europe's laxer regime has resulted in a big gap between test results and "real-world" figures. According to the International Council on Clean Transportation, which researches such matters, fuel consumption is on average 40% higher on the road and NOx emissions seven times higher than manufacturers' data suggest. Germany, alongside Britain and France, tested a variety of diesel models anew after the vw scandal. On April 22nd, it confirmed what others had found: NOx emissions far in excess of test figures.

Carmakers are abusing another loophole, according to Greg Archer of Transport & Environment, a green pressure group. Turning off emissions controls is permitted at low temperatures, to protect engine components. Yet it is also common for this to happen at balmy outside temperatures, in some cases as high as 18°C. Germany's regulators have asked vw, Daimler and GM to recall 630,000 cars to fix the problem, but acknowledge that the cars comply with regulations.

The search is now on for evidence of further manipulation. French officials raided the offices of Renault in January and on April 21st turned up at PSA, the maker of Peugeot and Citroën. The next day America's Department of Justice asked Daimler to investigate the certification process of its ►►

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Consulting

► diesel cars. Though details have not been made public the investigation may also centre on the system that turns off emissions technology at low temperature. Unlike in Europe, American regulators require explanation of how this type of software operates during testing.

Changes to testing regimes are afoot. Japan is likely to review the way its tests are carried out. Europe's system is also being readied for an overhaul. Plans are in place to replace its test cycle with a new one that more closely mimics real-world driving and imposes stricter rules over how cars may be prepared. A system for rechecking NOx emissions from production vehicles on the road is under discussion. That should ensure exhausts are cleaner. But the new test will only be harder, not impossible, to game. ■

Corporate whistleblowers

Deltour in the dock

The beancounter who exposed cosy tax deals for multinationals goes on trial

THE identity of the hacker who sucked 2.6 terabytes of data out of Mossack Fonseca, a law firm, to bring the world the "Panama papers" remains a mystery. Not so the source of the previous biggest financial leak: on April 26th Antoine Deltour, a soft-spoken, bespectacled former auditor with PwC, went on trial in Luxembourg for his role in the "LuxLeaks" affair.

Mr Deltour does not deny being behind the exposure of cosy tax deals between the Grand Duchy and 340 of the accounting firm's corporate clients, including Pepsi and FedEx. He passed 28,000 pages of documents to Edouard Perrin, a French journalist, in 2012. Many of these were later put online by the International Consortium of Investigative Journalists. PwC identified the former employee as the source of the leak and complained to prosecutors, who charged him with theft, violating secrecy laws and illegally accessing a database.

If convicted, Mr Deltour faces up to ten years in prison and a hefty fine. In the dock

with him are another former PwC man, Raphaël Halet (in connection with a separate, smaller leak), and Mr Perrin, who is charged as an accomplice. The trial is expected to last until May 4th.

Luxembourg's lawyers and moneymen mostly take the view that the case against Mr Deltour is straightforward: he stole data to reveal tax arrangements that were legal, and should be punished for his crime.

Mr Deltour's lawyers argue that the action was justified because it was in the wider European public interest. Neighbouring countries were being stripped of tax revenue by the deals, unaware of their cushy terms (profits routed to Luxembourg incurred tax of as little as 1-2%). Not all tax deals of this kind are legal: the European Commission argues that some fall foul of European Union (EU) state-aid rules.

The EU's competition commissioner, Margrethe Vestager, has praised Mr Deltour's actions, as has France's finance minister, Michel Sapin. The European Parliament has awarded him a prize. Even in Luxembourg, people have turned in droves against the questionable tax and other financial practices through which the tiny country grew rich: three-quarters of those voting this week in an online poll by *Le Quotidien*, a local newspaper, disapproved of the criminal charges. Regardless, overt support for corporate whistleblowers remains muted. Only a few dozen activists turned up to cheer Mr Deltour as he entered court; some waved "Justice Fiscale" placards, others blindfolded themselves with EU flags (something to do with hidden tax havens, apparently).

As part of their public-interest defence, Mr Deltour's lawyers will be sure to highlight the policy impact that LuxLeaks has had. By drawing attention to exploitable gaps in international tax rules, it sharpened the debate on reform. The OECD is overseeing the closure of numerous loopholes as part of its "Base Erosion and Profit Shifting" proposals. Large companies are steeling themselves to report profits and taxes paid on a country-by-country basis. EU governments have agreed to share with each other details of any special tax deals they strike with companies. "We've seen more tax progress in Europe in the past 18 months than in the previous decade," says Carl Dolan of Transparency International,

a lobby group.

However, the LuxLeaks case has exposed weaknesses in legal protections for whistleblowers. The relevant law in Luxembourg, passed in 2011, is one of the strongest in Europe, but too narrow: it covers only blatant criminality, not behaviour that is legal (or in a legal grey area) but nevertheless damaging to the public interest. The justice minister, Félix Braz, says it is "not a law that allows everyone to denounce everything and anything according to his own moral values". Still, the government is thinking of proposing changes. Campaigners want stronger EU-wide protections for leakers.

These would come too late for Mr Deltour. He is said to be "worried" about the prospect of spending time behind bars, but his lawyers say he has no regrets. ■

The future of Apple

Shake it off

SAN FRANCISCO

The world's most valuable company needs another mega hit

"OUR product pipeline has amazing innovations in store," Tim Cook, the boss of Apple, declared on April 26th. He hoped to sound reassuring after the company reported its first year-on-year quarterly revenue decline since 2003. But he was not convincing enough. Shares of Apple fell by around 8% in the hours after its results emerged, erasing more than \$46 billion in market value.

Investors' immediate concern is the popularity of the iPhone. It accounts for the bulk of Apple's revenues and profits; sales were 18% lower than a year ago. The broader smartphone market is sluggish, says Mr Cook. Apple hopes that the flashy new features of the iPhone 7, which it is expected to introduce in September, will convince customers to abandon older models. Until then, the company will probably face a further fall in revenue.

The bigger question that Mr Cook must answer is whether Apple will ever have another product as successful as the iPhone, the most lucrative in the technology business to date. Enthusiasm has waned for some of its other older products, such as iPads, and its newer ones remain niche offerings (see chart on next page).

The Apple Watch celebrated its first full year on the market on April 24th. It sold more in its first year than the iPhone did in 2007. But today's consumers are better primed to buy gadgets now than they were then; watch sales should be far higher. The cost of the Apple Watch—which starts at \$300—puts people off. So does its depen- ►►

Data with fate

Tax evasion/avoidance leaks, selected

Date	Name	Leaker	Leaker's fate
2008	LGT Liechtenstein	Heinrich Kieber	In witness-protection programme
2013	Offshore Leaks	Unknown	--
2014	LuxLeaks	Antoine Deltour	On trial in Luxembourg
2015	Swiss Leaks/HSBC	Hervé Falciani	Lives in France. Five-year Swiss sentence in absentia
2016	Panama Papers	Unknown	--

Sources: News reports; ICLJ; The Economist

dence on a smartphone for most activities, such as providing directions. The firm will sell a mere 8m watches in 2016, generating \$4 billion in sales, thinks Toni Sacconaghi of Sanford C. Bernstein, a research firm.

One bright spot is Apple's services business, which is expected to grow steadily. As it sells more gadgets—over 1 billion devices are in use—it can also sell content and services, and gain revenue from music, its app store and more. In the second quarter Apple had \$6 billion in services revenues, more than for Macs or iPads.

What else could the firm come up with? That Apple has been working on an electric car is one of the worst-kept secrets in the technology business. Reported disagreements with German carmakers over control of users' data may have halted a potential alliance. Many also expected Apple to disrupt television. But Apple TV, the firm's alternative to a set-top box and subscription, sells most shows and films à la carte, which becomes expensive very quickly. Its appeal is limited.

The problem, says James McQuivey of Forrester, another research firm, is that it will be difficult for Apple to come up with another single product as central to daily routines as the iPhone. Collections of devices in connected homes will matter more instead. The exception may be augmented reality (see page 74), but Apple's rivals already appear to be ahead.

Apple's biggest problem is its past success. It is the most valuable company in the world by market capitalisation because investors believe the firm can make new technologies popular. Mr Cook, who took over as chief executive in 2011, soon before the death of the firm's co-founder, Steve Jobs, has led Apple competently. But there are lingering doubts about whether he can produce the sort of smash for which Jobs was so feted. ■



Independent contractors

Category error

A third category of worker could benefit the gig economy

CONTROVERSY over America's "independent contractors"—self-employed workers who do not benefit from regulations governing employment—predates the gig economy by decades. In 1984 the IRS estimated that 3.4m workers were being misclassified as independent contractors. FedEx, a delivery firm, has been fighting lawsuits that allege its contractors are really employees for at least ten years. But the upsurge in apps that connect users with contractors—to drive them somewhere, collect their laundry or deliver their shopping—has reinvigorated this old debate.

On April 21st Uber, a ride-hailing app and the biggest such platform, announced that it had settled two class-action lawsuits brought by drivers in California and Massachusetts. Under the deal, which still needs judicial approval, the classification of Uber's drivers as independent contractors will not change (though, among some other concessions, they will be able to form a "driver's association" through which they can air concerns).

Uber did not bring contractor status to its industry: in 2009, the year the firm was founded, 88% of taxi drivers were already contractors. Unlike employees, who must show up to work and obey instructions, contractors usually strike bargains for individual tasks, such as fixing a sink. This model works best when such deals are eas-

ily struck and enforced. It is rarely easier than in the taxi industry, where a contract is a promise to take someone from A to B.

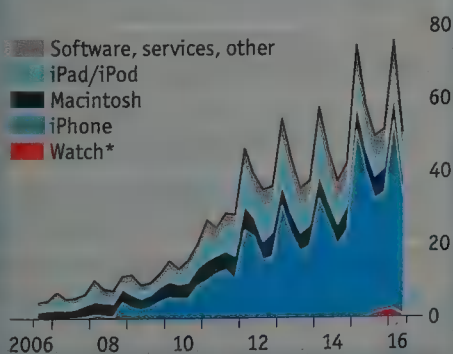
What is new about platforms like Uber is their potential power over workers. Traditional contractors—plumbers, say—can advertise in multiple places to find work. Licensed taxis can physically seek out passengers. But for some drivers, Uber's size and competitive advantage may make it the only feasible route to finding clients. There is little workers can do if a monopoly platform decides to slash prices, take a bigger cut of each transaction for itself, or disconnect them due to low customer ratings. (As part of the settlement Uber set out its disconnection policy for the first time.)

The first potential solution is competition. Where rivals operate, Uber must tread more carefully. Cut drivers' earnings too deeply, and they might flee to a competitor. Yet switching costs and network effects—the benefit customers and drivers get from using the same app—could make these platforms natural monopolies. In that case, letting workers unionise is the second logical response to platforms with outsize bargaining clout. The problem is that contractors usually cannot unionise because antitrust law treats them as businesses. To bargain collectively is to run a cartel.

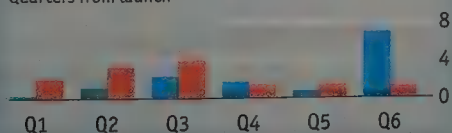
That provides one reason to treat drivers as employees. There would be other ►►

Core business

Apple's quarterly revenues, \$bn



Unit sales, m
Quarters from launch



Sources: Bernstein Research; Bloomberg *Estimate
†Q1-Q4 estimates, Q5-Q6 forecast

Upsides, too. Contractors must pay both the employer's and the employee's portion of social-security taxes. For most self-employed workers, this makes sense: electricians could hardly ask each of their clients to pay such levies. If drivers were employees, a centralised platform such as Uber could handle the paperwork. That would simplify life for drivers, who currently face one tax rate in their car and another in a regular job.

However, full employee status would risk breaking the business model of most platforms. Take the minimum wage, which employees but not contractors are entitled to. Uber's app works so well because it steers drivers to where demand is highest.

If they could earn a minimum wage for driving around in a quiet area, those incentives would be blunted.

One solution, advocated by economists Seth Harris and Alan Krueger, who has consulted for Uber in the past, is to introduce a third category of worker for the gig economy: the "independent worker". These hands would have the right to organise and would have social-security contributions made on their behalf. But they would not receive the minimum wage or unemployment insurance. The idea has some merit, though it would make worker classification still more complicated. In the meantime, lawsuits against Uber in other states roll on. ■

China will overtake America as the biggest spender on business travel. Last year ISOS saw its "outbound" China business grow by 46%, thanks in part to Beijing's commitment to building a "new silk road" from Central Asia to the Mediterranean.

Founded over 30 years ago to provide emergency medical care for Europeans working in South-East Asia, ISOS has become a global business. When the Arab Spring got going in 2011, it had the resources to carry out large-scale evacuations from Egypt (1,250 people) and then Libya (1,500).

Since 2001 ISOS has grown from revenues of \$250m a year and 2,500 employees to \$1.5 billion and a staff of 11,000, which includes over 5,000 medical professionals and 200 security specialists. Operating from around 1,000 locations in 90 countries, it takes nearly 5m assistance calls every year. However, while it is large-scale evacuations at times of crisis that grab attention, the biggest risks that business travellers face are more prosaic. According to a survey of its European customers in 2015, 11% said they had experienced terrorism as a threat to their safety compared with 34% who cited petty crime and 33% traffic accidents.

Whatever the emergency, knowing exactly where your people are when something bad happens is the first part of any plan to help them. After the terrorist attacks of September 11th 2001, ISOS introduced travel-tracking technology that provides real-time data about employee movements. Now, apps on phones using GPS can establish virtual secure areas—so called "geo-fencing". A panic button on the phone sends SMS and e-mail alerts with location information if someone leaves or enters designated perimeters.

Although support when an emergency strikes is what gives clients reassurance, ISOS and its smaller rivals, such as Annapolis-based iJet and Anvil Group, a

British firm, emphasise that risk mitigation starts with understanding where and how threats arise and knowing how to avoid or deal with them. That matters not just for practical reasons but for legal ones too. Employers have a duty of care and so can be sued if staff have not been adequately prepared or properly informed about dangerous situations they might find themselves in. One more reason why ISOS and its ilk need not worry too much about falling demand. ■

Travel security

Risky business

International SOS is the biggest player in a fast-growing industry

AT THE centre of a large office in west London sits a raised circular platform with several seats. Screens in front carry international news superimposed on a huge atlas. From here rescue missions are co-ordinated by International SOS (ISOS), the world's largest travel-security firm, which counts nearly two-thirds of the Fortune Global 500 companies as clients. It operates 26 other centres across the world. The firm says they have never been busier.

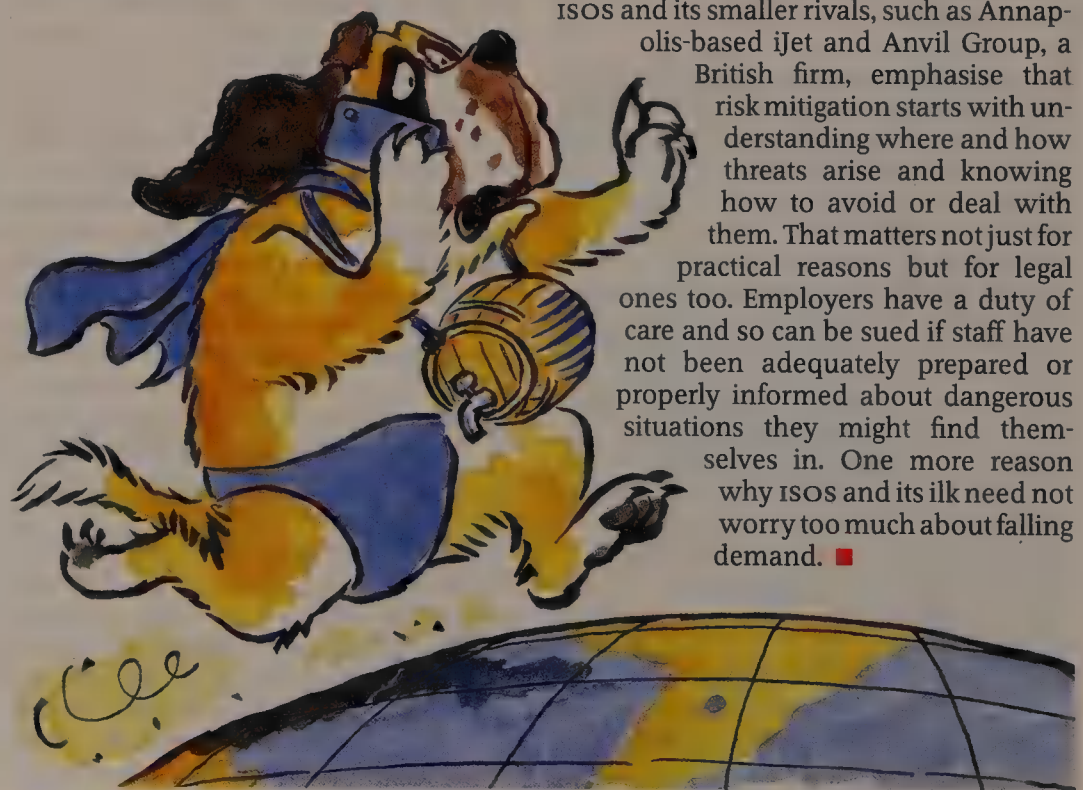
ISOS has responded to emergencies large and small. They range from giving timely advice to the parents of a child in Nigeria who had swallowed a coin to evacuating corporate and NGO clients from Burundi during last year's coup attempt. Torn between a medical airlift and potentially risky surgery in a local hospital, the child's parents were counselled by ISOS doctors to let nature take its course, which it duly did. The Burundi operation was trickier.

"When the president [Pierre Nkurunziza] started talking about serving an unconstitutional third term," explains Tim Willis, a former army officer who is the firm's European security director, "we thought 'look out' and began sending alerts to our members. When the balloon went up in May, their families had got out and they were prepared." A nurse was embedded with one client, a local security provider was told to stand by with vehicles and an ISOS manager flew to neighbouring Rwanda to co-ordinate the operation.

Next a handful of people were moved into a secure hotel. Then, once the road to the border was declared viable, they made their way out. A plane was being chartered in Nairobi meanwhile to collect another 73

employees of a client from the airport at Bujumbura, the capital, and fly them to Rwanda's capital, Kigali. For Mr Willis it showed how managing efforts close to the action results in a "boring evacuation, which is what we want".

Globalisation (ever-increasing business travel and tourism), political instability (spreading in an arc from the Gulf to sub-Saharan Africa) and fear of terrorism in places previously thought safe (such as Istanbul, Jakarta, Paris and Brussels) are all drivers of the business. So too is China's expanding international footprint. This year





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Billionaires are funding lots of grandiose plans. Welcome their ambition



YURI MILNER, a Russian internet billionaire, wants to answer the great existential question: "Are we alone in the universe?" He has already launched a project to listen for signals from outer space, using two of the world's biggest radio telescopes. This month he also unveiled plans to send an armada of tiny spaceships, powered by laser beams and equipped with all sorts of sensors, to Alpha Centauri, 40 trillion kilometres away.

Sir Richard Branson, the boss of the Virgin Group, and Elon Musk, the entrepreneur running Tesla, a car company, have both founded space ventures, Virgin Galactic and SpaceX. Sir Richard wants to turn space tourism into an industry; Mr Musk lists his ultimate goal as "enabling people to live on other planets". Once upon a time the space race was driven by the competition between capitalism and communism. Now it is driven by the competition between individual capitalists.

Space is not the only frontier that billionaires want to conquer. Sergey Brin, the co-founder of Google, hopes to give meat a makeover by growing it from stem cells. Mr Musk desires to "reinvent" railways by shooting passengers down hermetically sealed tubes. Tycoons are particularly keen on schemes to cheat the grim reaper. Peter Thiel, a co-founder of PayPal, proclaims that "The great unfinished task of the modern world is to turn death from a fact of life to a problem to be solved." Larry Ellison, the chairman of Oracle, has said: "Death never made any sense to me. How can a person be there and then just vanish?" Both men have invested money in various ventures designed to come up with ways of reversing ageing. Dmitry Itskov, one of the pioneers of the Russian internet, says that his goal is to live to 10,000.

History is full of examples of rich men with big ideas. The merchant princes who founded enterprises such as the London Company in the 17th century wanted to build bustling empires across the seas. Howard Hughes spent the 1930s testing innovative aircraft and setting aeronautical records, almost killing himself in the process, and founded a medical clinic whose goals included discovering "the genesis of life itself". But the closest parallel with what is happening today is the gilded age in America.

The late-19th and early-20th centuries saw gigantic concentrations of wealth in the hands of people who created their own companies. Andrew Carnegie and John Rockefeller held the ma-

jority of shares in their companies just as the founders of Facebook and Google hold controlling shares in theirs. The political system was incapable of dealing with the pace of change: in America it was paralysed by gridlock and complacency, and in Europe it was overwhelmed by animal passions. Entrepreneurs, flush with money from new technologies, felt duty-bound to step in, either to deal with problems that politicians were unable to confront or to clean up after their failures. Today's state may be much bigger, but its shortcomings are no less glaring.

Back then, numerous industrialists, including William Lever in Britain, J.N. Tata in India and Milton Hershey in America, founded company towns that were intended, at a minimum, to combat the evils of industrial civilisation and, on occasion, to create a new kind of human being. Carnegie, a steel baron, and Alfred Nobel, a dynamite tycoon, both became obsessed by the idea of abolishing war for ever. Henry Ford launched a succession of ambitious schemes for improving the world, including eliminating cows, which he couldn't abide. In 1915 he took a ship of leading business people and peace activists to Europe to try to end the first world war and "get those boys out of the trenches". "Great War to end Christmas day," read a *New York Times* headline; "Ford to stop it." In 1928 he tried to recreate an American factory town in the middle of the Amazon rainforest.

Fashions change. None of today's billionaires spends serious money on universal peace. But the psychology of the very rich seems the same. Reforming billionaires down the ages display the same bizarre mix of good and bad qualities—of grandiosity and problem-solving genius, naivety and fresh thinking, self-importance and altruism.

There is a lot of ego involved—the minted are competing with each other to produce the most eye-catching schemes, much as they vie to run the most successful businesses. That helps to explain why the billionaire space race has escalated from sending rockets into orbit to sending spaceships to Alpha Centauri. There is also a lot of misdirected effort. The gift of \$100m by Mark Zuckerberg, Facebook's founder, has not dramatically improved Newark's schools. Ford's Amazonian experiment crumbled into ruins as employees balked at some of his rules, which included serving only American food and compulsory square-dancing. His voyage to end the first world war descended into farce: the press re-christened his vessel "the ship of fools" and the Norwegians diagnosed him as suffering from *Stormannsgalskap*, or the "madness of great men".

Big cheques, bigger dreams

Yet the madness does far more good than harm. Deep-pocketed entrepreneurs not only add to the number of moonshot projects, literal or metaphorical, they also introduce fresh thinking. Mr Milner's ideas for contacting aliens challenge some of the unexamined assumptions of America's space bureaucracy by using tiny spaceships and laser beams rather than larger craft and rocket fuel. The most talented billionaires have a genius for combining grand ideas with intense pragmatism; the Gates Foundation is pursuing its aim of abolishing polio and malaria with a business-like attention to detail. And sometimes grandiose ideas can do good even without achieving their ultimate goals: the Carnegie Endowment for International Peace and the Nobel peace prize have improved the world even if they haven't abolished war. You cannot shake up the world without treating what most people regard as facts of life as "problems to be solved". ■



India's rural economy

Dry times

KHARSAI

Meagre rainfall is only part of the problem for India's farmers

HIS village may be parched, but Bala-chandra Ambaji Payar's banana trees are a vivid green. In the shade cast by their fronds, a few chilli plants add more colour—and income—to a region left blanched by two consecutive years of disappointing rain. Mr Payar is an advertisement for “drought-proofing”: a simple irrigation system installed last year brings water onto his land in western India from a nearby well, to be drip-fed to his crops through a perforated hose. It is just the sort of investment that rural India needs to escape problems far greater than the weather.

Some 850m Indians live in rural areas, and nearly 60% of them depend on farming for survival. For many, it is not much of a living. India has more people living in poverty than any other country—260m by the World Bank's count—and 80% of them live in the countryside.

Farmers are poorer than urban folk the world over, but the difference in India is stark: the median annual wage for a farmer, at 19,250 rupees (\$290) including the implied value of the food they consume, is barely two months' minimum wage in Mumbai. Data from 2008 show the rural-urban wage gap at 45%, versus around 10% for China and Indonesia.

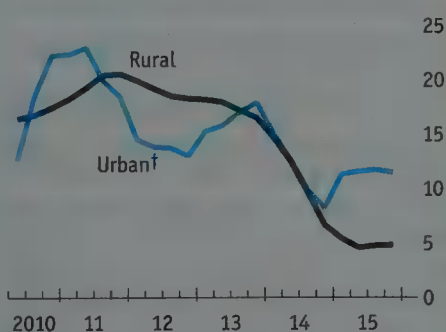
Much of that is down to low productivity: farmers in India grow 46% less rice per acre than their Chinese counterparts and 39% less wheat. Less than half of Indian farmland is irrigated. That leaves farmers

at the mercy of the monsoon, which dumps the lion's share of annual rainfall in just a few months over the summer. Normal rains this year (which early weather forecasts are predicting, albeit with a record befitting astrologists or economists) would bring respite. But a good drenching is no substitute for greater investment.

By the government's own assessment, Indian farmers are “locked in” to low-value crops such as wheat and rice, even as increasingly affluent city types demand fruit, vegetables and meat. Making the switch to bananas and chillies is potentially lucrative: Mr Payar's harvest will fetch 75,000 rupees, nearly four times the value of the rice and millet crop he could grow on unirrigated land, monsoon allowing. But the

A widening chasm

Indian wages, % increase on a year earlier*



Sources: Morgan Stanley Research; national statistics
*Four-quarter moving average
†S&P BSE 500 employees

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transition needs agricultural infrastructure such as cold storage as well as access to credit, which is not usually forthcoming for farmers like Mr Payar (the Swades Foundation, an NGO, paid most of the 36,000-rupee bill for his irrigation system).

Only a tenth of the money the government spends in rural areas goes on investments that might boost yields. Much more is squandered on subsidies that encourage farmers to grow staples while occasioning vast corruption. Other countries have embraced genetically modified seeds, but India allows them only for cotton—the sole crop to have seen yields grow rapidly in recent years. For a time high prices for agricultural commodities around the world disguised the effects of such daft policies, by boosting rural incomes, but not any more (see chart).

Non-farming income in rural areas has also suffered. A small guaranteed-employment scheme has helped relieve acute distress, but only goes so far. Other forms of employment available outside cities, notably in mining, are in the doldrums. Remittances from the Gulf are under pressure, too, as oil prices have slipped.

A quick way to enrich Indian farmers would be to turn them into city-dwellers. However hard India tries to boost rural wages, farming cannot compete with a service sector that is six times more productive. But policymakers with romantic ideas about the rural heartland have impeded the flow of migrants. In 1970 India's urbanisation rate stood at 20%, higher than both China's and Indonesia's. Urbanisation has since trebled in those two countries, to around 55%; in India, it is just over 30%.

Moving to cities (or commuting on a seasonal basis) is easier than it once was thanks to improved roads and telecoms. But various government benefits that can be accessed only in their native district tie ►►

► Indians to their place of origin, much as the *hukou* system pinions rural Chinese. Village-dwellers are also reluctant to abandon informal rural safety nets based on caste. And construction jobs, a well-trodden pathway to urbanisation, are currently hard to come by.

Another impediment is land: few owners have firm title to theirs, and so cannot sell it. Leasing it is risky, since it can be hard to reclaim from the tenant. As a result, farms in India have shrunk as the rural population has swelled: the average plot in 2010 measured just 1.16 hectares (roughly the size of a Manhattan city block), down

from 1.84 hectares in 1980. Such fragmentation makes investment in machinery harder and dampens farmers' selling power. Demography points to ever-smaller farms: much of India's still rapid population growth comes from the countryside, points out Anirudha Dutta, an analyst.

Aware of rural distress—and facing elections in farm-heavy states—Narendra Modi, the prime minister, has pledged to help farmers. He wants agricultural incomes to double by 2022, an ambitious target as yet unsupported by detailed policies. Better crop-insurance schemes and improved ways for farmers to market their

produce are evergreen ideas whose success depends on implementation. Some states are sensibly pushing ahead with land registries. Using biometric technology to ensure subsidies go to the right people should also help.

In the past, the failure of the monsoon was enough to prompt a nationwide recession. Not any more: now failed rains, even for two years running, cause only localised distress. That represents progress, but more is needed. Even doubling rural Indians' wages would be just a start. For Indian farmers to escape poverty, there need to be fewer of them. ■

Buttonwood | The great switchover

The mood of the markets has changed

SOMETIMES the financial markets seem to go in a different direction from the fundamentals. Global economic forecasts for 2016 are still being revised downwards and the rate of defaults on corporate bonds is rising sharply. But since the middle of February, share prices have rallied strongly while the spread (the excess interest rate over government bonds) paid by corporate borrowers has fallen significantly.

The reason for this divergence is that investors are affected not just by news, but by how the news diverges from their expectations. Things may not be great, but they are not as bad as was feared earlier in the year. In February there were widespread worries about the Chinese economy—concerns that the plunging price of oil and other commodities seemed to validate. The latest data suggest the Chinese economy is slowing but not crashing; commodity prices have rebounded. In February the Federal Reserve was also expected to tighten interest rates repeatedly this year; now investors think it will move cautiously (see page 69).

The mood of the markets has changed in other ways too. Rob Arnott at Research Affiliates, an advisory firm, says conditions at the start of 2016 resembled those that pertained in early 1999. Inflation expectations had been falling, emerging equities and currencies were underperforming and “growth stocks” (in technology, for example) were beating “value stocks”—those that look cheap relative to their peers. All these trends have since reversed. The rebound in commodities has helped sentiment towards emerging markets and pushed up inflation expectations (crucially, investors seem less concerned about deflation). Tech stocks have mostly headed south amid disappointing profits from Alpha-



bet, Apple, Microsoft and Twitter.

The markets' mood swings may reflect the difficulty in analysing the global economy since the financial crisis of 2008. It has neither recovered as strongly as many expected nor slipped back into recession. In addition, investors face a continuing dilemma. Low (and sometimes negative) yields on cash and government bonds mean that the stockmarket looks like the only plausible source of decent returns. But many wonder whether the bull run in equities, which began in 2009, can be maintained in the face of a sluggish economic recovery and faltering corporate profits. Whenever the economic outlook darkens, investors sell equities. But the sell-offs don't last long given the paltry returns available elsewhere.

Short-term volatility is not the biggest problem facing pension funds, endowments and insurance companies. A new report from McKinsey, a management consultancy, argues that future investment returns are likely to be lower than the exceptional figures achieved over the past 30 years (see chart). A lot went right for investors over that period, after all. Inflation de-

clined, allowing bond yields to fall and equity valuations to rise, delivering outsize capital gains; global GDP growth was boosted by the emergence of China and by productivity gains from the internet; corporate profits around the world rose, from 7.6% of global GDP in 1980 to 10% by 2013, by McKinsey's reckoning.

These trends are unlikely to continue. Bond yields are very low and can hardly fall much further; equity valuations are already high; GDP and productivity growth have disappointed recently; profit margins are high and seem more likely to fall than rise (the slowdown in tech profits reinforces that impression).

McKinsey reckons that, in a slow-growth environment, real annual returns from equities over the next 20 years may be 4-5%, well below the average of the past 30 years; real bond returns may be just 0-1%. Even a rebound in American growth to 2.8% a year might generate real equity returns of only 5.5-6.5%, below the average of the past three decades.

Central banks, by offering support to asset markets in the form of quantitative easing, may have pushed up valuations (and pushed down yields) in the short term. But in essence this means that the markets have “borrowed” returns from the future; from a starting point of higher valuations (lower yields), future returns are likely to be lower.

This has big implications for today's workers. McKinsey reckons that a 30-year-old will have to work seven years longer or save almost twice as much to afford the same pension as the typical baby-boomer. But with job security weak and wage growth hard to come by, few 30-year-olds will have enough income to ramp up their savings.



Goldman Sachs

From the 1% to \$1

NEW YORK

The high-rolling investment bank courts small depositors

TO THE extent that Goldman Sachs has anything to do with the little guy, it is usually accused of trampling over him in pursuit of profit. As an investment bank, Goldman had not sought out deposits and the onerous regulation that comes with them. In recent years it has declined even to manage assets for clients with less than \$10m, in the hope of escaping rules regarding "unsophisticated investors". Yet all that changed in mid-April, when it completed its purchase of GE's internet-banking subsidiary. That brought it \$16 billion in retail deposits. It is now soliciting more, offering generous interest (by today's miserly standards) on balances of as little as \$1.

Admittedly, Goldman already held \$88 billion in deposits. But those were either the cash holdings of the millionaire customers of its wealth-management arm, or accounts steered to it in wholesale batches via middlemen. Online deposits at GS Bank, as the internet bank is known, earn annual interest of 1.05%. That is only a bit less than the 1.11% offered by Dime Savings Bank of Williamsburgh, a tiny New York bank that is America's most generous deposit-taker according to Bankrate.com, a comparison website. But it is considerably more than the 0.75% paid by Capital One, America's biggest online bank. It is more than double the 0.49% Goldman pays on its existing deposits. And it is many times the rates big banks pay on conventional savings or current accounts.

Compared with borrowing on the bond market, however, it is cheap. Goldman has \$175 billion in long-term debt,

with an average annual interest rate of 4.6%, according to Morningstar, a research firm. The two are not strictly comparable: deposits involve higher administrative costs and payments to America's deposit-insurance fund. They can also be withdrawn at will, whereas Goldman's debt has an average duration of seven years.

In practice, ordinary savers seldom withdraw their money in a panic, since deposits of \$250,000 or less are insured. That is in stark contrast to short-term investors in the bond markets, who sometimes rush to sell at the first whisper of trouble, leaving banks less able to borrow. At any rate, regulators are encouraging banks to seek deposits under various new rules designed to ensure that banks do not suffer liquidity crises.

Goldman has not said what it will do with the money GS Bank attracts. Some speculate that they will be used to fund Mosaic, its embryonic online-lending business, which plans to dish out modest sums to individuals and small businesses. The idea of Goldman as a savings bank and lender to the masses may seem somewhat incongruous, but GS Bank and Mosaic are not its first forays into the finances of the 99%. In March it bought Honest Dollar, an online provider of retirement accounts through which companies help their employees to save. It charges low and transparent fees to make investments in inexpensive exchange-traded funds. For years Goldman has courted only those at the top of the heap. Now, apparently, it sees opportunity at the bottom. ■

The Bank of Japan

When easing gets hard

TOKYO

As monetary policy hits the buffers, policymakers blame big companies

HARUHIKO KURODA added another instance to his record of wrong-footing financial markets this week. Confronted with a rising yen and tumbling inflation, the thinking went, the central-bank governor had little choice but to shore up the credibility of the Bank of Japan (BoJ) with even looser monetary policy. But in the end the BoJ kept its stance unchanged. Markets reacted swiftly after the decision on April 28th: the yen jumped and the Nikkei 225 stockmarket index slumped.

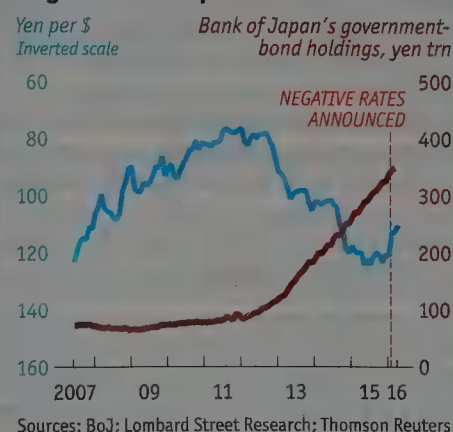
Since introducing an interest rate of -0.1% on excess bank reserves in late January, Mr Kuroda has been hauled before parliament no fewer than 32 times to explain himself. Perhaps that has left him gun shy. Or perhaps the BoJ's inaction is a hint to Shinzo Abe, the prime minister, that monetary policy should bear less of the burden of dragging Japan's economy out of the slough of low inflation and growth.

Many economists reckon, nonetheless, that the BoJ will have little choice but to ease again soon. Mr Abe's policies have failed to produce much growth or inflation, partly due to a falling oil price and China's slowdown. GDP contracted by an annualised 1.1% in the last quarter of 2015 and is expected to continue fluctuating around zero in the first half of 2016.

Some hopeful data emerged before the BoJ's monetary-policy meeting, notably that industrial production rose month on month in March by 3.6%, the biggest leap in nearly five years. But growth in the second quarter will probably suffer from recent earthquakes in Kumamoto prefecture, which disrupted industrial supply chains.

Worse, Japan is once again mired in deflation. Core CPI, which excludes fresh food, fell by 0.3% in March year on year, the ►►

Negative consequences



biggest drop since the BOJ launched its programme of easing three years ago. Meanwhile the BOJ's preferred measure, which strips out fresh food and energy, rose by 1.1%. Yet the drops in the headline measures have dented households' and firms' expectations of inflation. The BOJ once again cut its forecasts for growth and price rises.

What especially worries policymakers is that the yen has risen by nearly a tenth against the dollar since late January, reversing a long decline as the BOJ embraced quantitative easing (see chart on previous page). If anything, Japan's trade and current-account surplus signal further currency strength over the rest of the year, reinforced by the Federal Reserve's failure to signal another imminent rate rise at its meeting this week (see subsequent story).

All in all, the power of the BOJ to overcome structural imbalances in Japan's economy seems to be diminishing. Large firms have continued to add to their hoards of cash. They now hold close to ¥250 trillion (\$2.2 trillion) in cash, a massive 50% of GDP. Capital investment by firms is 7% below its level eight years ago and the gap between corporate cashflow and investment is at record levels, notes Richard Katz of the *Oriental Economist*, a newsletter.

Nor have firms raised wages much in spite of a tight job market. Pay rises in the order of 5-10% this year are required to boost household consumption, econo-

mists argue. Instead, workers at large firms are on track to receive a lower pay rise—an average hike in overall base pay and seniority-related pay of 2.19%—than they did in the previous two years.

Many in the government feel let down by the corporate sector, says an official. Mr Abe has improved the environment for big business with (until recently) a sharply lower yen and reduced corporate-tax rates. But big firms argue, in circular fashion, that their spending is inhibited by Japan's uncertain growth prospects.

Mr Abe is now likely to use fiscal policy to try and sustain some level of growth. In May he is expected to postpone a rise in Japan's consumption tax from 8% to 10%, which is scheduled for April 2017. A large supplementary budget package is in the works. But all that will add to worries about the size of Japan's national debt, which is more than 240% of GDP.

Some economists believe that the BOJ will become the first big central bank to resort to "helicopter money"—printing money to fund government spending or to give people cash. Some argue the bank is already deploying something close to 'copter cash by sucking up so many government bonds. But it does not buy them directly, and Mr Kuroda recently said he would not countenance outright helicopter money. It was not long ago, of course, that he categorically ruled out negative rates. ■



Dos Santos says there was no deal

deadline, BPI said a deal had been struck.

A week later BPI said Santoro had "disrespected" the deal, requesting an unacceptable change. The Spaniards made their new offer, asking the ECB to put sanctions on hold. The bid is conditional on the scrapping of a legal cap on shareholders' votes at 20%, which helped Santoro to block last year's takeover attempt. Portugal's government promptly passed a law to ease the lifting of the cap.

Santoro denied that a deal had been finalised, and damned the change in the law as "clearly partial". *Expresso*, a Portuguese weekly, reported that Angola's government was contemplating limiting BPI's voting rights at BFA, thus handing control to Unitel, and even stopping expatriate Portuguese workers sending money home.

António Costa, Portugal's Socialist prime minister, wants BPI's future settled swiftly. He has plenty of other banking troubles. Weeks after his minority government took office in November, he spent €2.2 billion bailing out Banif (since sold to Santander, another Spanish bank). In December the central bank transferred nearly €2 billion of bonds from Novo Banco to the "bad" bank where BES's toxic assets had been dumped. Furious investors are suing. Novo Banco remains unsold.

Worried about the drag of ailing lenders on the economy, Mr Costa wants to create another bad bank, like that recently set up in Italy, to house non-performing loans. This would free banks to lend to viable companies, he says, but spare the taxpayer, as it would be financed by the private sector with the help of some state guarantees. Where the private money would come from is unclear. As Elena Iparraguirre of Standard & Poor's, a rating agency, points out, in Italy bigger, stronger banks are supporting smaller, weaker lenders. In Portugal "the weaker ones are the largest". ■

Portuguese banks

Spanish steps

LISBON

A bad-tempered takeover battle, and other troubles

BY PORTUGAL'S undemanding standards, Banco BPI is in decent shape. Two Portuguese lenders, Banco Espírito Santo (BES) and Banif, have collapsed in the past two years. In September the government called off the auction of Novo Banco, the "good" bank salvaged from the wreckage of BES, because the bids were too low. As the euro crisis battered Portugal, BPI also suffered. But the country's fifth-largest bank, with assets of €40.7 billion (\$46 billion), returned to profit last year. (It was due to report earnings on April 28th, after *The Economist* went to press.) Its bad-loan ratio is 4.9%; the national average is a dismal 12%, says Fitch, a rating agency.

BPI's biggest shareholder, CaixaBank, the third-largest lender in neighbouring Spain, sees promise: this month it made its second offer in just over a year for the 55.9% it does not already own. CaixaBank asserts that it can squeeze BPI's cost-income ratio from 74%, far above the 57% average of its ri-

vals, to below 50% in three years.

Yet the bid reflects urgency as well as hope. CaixaBank and Santoro Finance, BPI's second-biggest shareholder with a 18.6% stake, have been wrangling over how to comply with the European Central Bank's insistence that BPI reduce its exposure to BFA, an Angolan bank of which it owns 50.1%. To BPI, BFA is not small beer. Last year the Angolan bank contributed €135.7m to BPI's net profit of €236.4m. Its return on equity, 32%, dwarfed the Portuguese business's 5.2%.

Santoro is controlled by Isabel dos Santos, daughter of the president of Angola (a Portuguese colony until the 1970s) and reputedly Africa's richest woman. Unitel, a mobile-telecoms operator which Ms dos Santos controls jointly with the Angolan state oil company, owns the rest of BFA. Talks eventually centred on the obvious: CaixaBank would get a majority of BPI and Unitel of BFA. On April 10th, the ECB's

The Federal Reserve

DC hold'em

How long will the Fed keep rates steady?

IF ANY other lift-off were so sluggish, you would not want to be aboard the rocket. In December the Federal Reserve raised interest rates from close to zero, where they had been since 2008, to between 0.25% and 0.5%. At the time members of its rate-setting committee said they expected four more increases in 2016.

Not any more. Shortly after lift-off, stockmarkets, which always doubted the Fed's plans, tumbled on fears that disappointing growth in China would drag down the world economy. The S&P 500 lost 11% between the start of the year and its trough in mid-February. Surging spreads (the excess interest over government borrowing) on corporate bonds, often a sign of imminent economic woe, caused some pundits to predict a recession. And market-based measures of inflation expectations slumped. At one point in February, the gap between yields on inflation-protected bonds and the regular kind implied that inflation would average just 0.9% over five years—the lowest projection since 2009.

Unsurprisingly, the Fed held fire in January and March. Janet Yellen, the Fed's chairman, made it clear that global turbulence had forced a change of plan. Most of the rate-setters now forecast just two rate rises in 2016, bringing them into line with what the markets were forecasting in December. But markets, too, have adjusted their expectations downwards. Today, they reckon there is a one-in-three chance of no rate rises at all this year.

Last autumn the Fed signalled very clearly that it was preparing to raise rates. Its statement after the meeting that concluded on April 27th sent no such signal. Three-quarters of the economists polled before the meeting by the *Wall Street Journal* had expected a rate rise in June, at what is now the Fed's next meeting. After this week's dovish statement, they will surely put back that date.

It is easy to see why the economists were wrong-footed. Markets have mostly shaken off their start-of-year woes (see Buttonwood). Oil prices have rebounded. On a trade-weighted basis the dollar, which had surged by 6% between the start of August and the end of January, is almost back where it started, as money has rushed out of dollar-denominated assets and into previously shunned investments elsewhere.

Most important, the labour market continues to fizz. Payrolls swelled by 215,000 in March—well above the level of employ-

Chinese loans to Africa

Credit limit

KAMPALA

New data suggest that China lends less to Africa than is commonly assumed

CHINESE loans to Africa generate frenetic commentary. Some say they prop up dictators; others, that they spur development. The figures quoted are often enormous. Visiting South Africa in December, for example, Xi Jinping, China's president, pledged \$60 billion in funding to Africa, mostly in the form of loans and export credits.

But don't be dazzled by the headlines, say researchers at the China-Africa Research Initiative (CARI), based at Johns Hopkins University in America. Since 2007 they have been trying to track the African lending of China's notoriously opaque state-owned banks. Their findings suggest that China lends much less to Africa than is commonly reported.

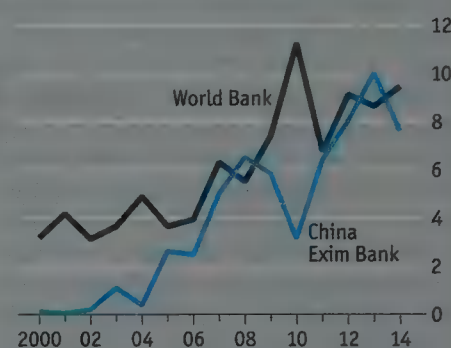
The researchers doggedly followed up 1,223 reports of Chinese loans, looking for evidence like the start of works or a notice on an official website. They found that only 56% of the loans actually materialised. In 2011 Fitch, a rating agency, reported that over the previous decade the China Export-Import Bank had lent more than the World Bank to sub-Saharan Africa. In fact, say the CARI team, the World Bank has been the bigger lender every year in the past decade bar two, although Chinese lending is catching up (see chart).

There are other surprises, too. China-

watchers sometimes talk of an "Angola model": low-interest loans, using commodities as collateral. Oil-rich Angola has indeed received more Chinese loans than any other African country: it accounts for a quarter of the \$86.9 billion lent to African governments and state-owned enterprises between 2000 and 2014. But across the continent only about a third of Chinese loans were tied to natural resources, says Deborah Brautigam, who led the research project. The second-biggest borrower was resource-poor Ethiopia, which is apparently deemed a good investment thanks to its China-like approach to development.

No single paymaster

Loans to sub-Saharan Africa, \$bn



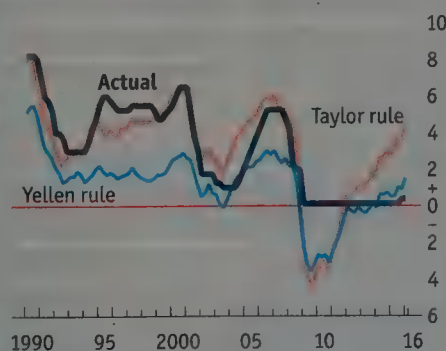
Source: China Africa Research Initiative

ment growth needed to reduce slack in the economy. Even the labour-force participation rate, which had tumbled, is now recovering (see page 28). Ms Yellen recently said the Fed is "coming close" to its goal of full employment.

Inflation—the Fed's other target—is also rising. The Fed's preferred index of core inflation, which excludes volatile food and energy prices, is up by 1.7% year on year.

Lagging behind

Federal-funds rate, actual and rule-based, %



Source: Capital Economics

The last time it was this high was in July 2014, just before oil prices tanked. Headline inflation is lower, at only 1%, but core inflation is generally a better predictor of where the headline rate is headed. As a result, simple so-called "Taylor rules" for monetary policy, which take into account both unemployment and inflation, suggest that lift-off is well behind schedule. This is true even when you adjust them in ways that Ms Yellen has advocated (see chart).

Why, then, the delay? Weak growth is one explanation. Growth in the first quarter of 2016, due to be revealed as *The Economist* went to press, was expected to be lacklustre, at less than 1% annualised. With the labour market creating so many jobs, GDP is stalling because of measly rises in productivity. There is little the Fed can do about that.

By the Fed's standards, in short, the case for a rate rise on the basis of the domestic economy is strong. The new statement also sounded less concerned about the world economy. The Fed may have proved dovish so far this year, but that could change sooner than the markets seem to think. ■

Free exchange | If it ain't broke, don't Brexit

The British economy would be neither destroyed nor unleashed by leaving the EU

ON JUNE 23rd Britons will vote on whether their country should stay in the European Union. They face a bewildering range of estimates of the potential economic effects of a Brexit. By 2030 Britain's GDP could be as little as a fraction of a percentage point below the level it would otherwise reach, or as much as 9.5 percentage points lower, depending on just whom you ask and what they assume about the future. While such analyses are useful (particularly in their clarifying agreement that Brexit would do at least some damage to the British economy over the next 15 years), they are also guilty of providing a spurious sense of precision. When attempting to predict the fate of the British economy after Brexit, it is useful to keep two rules of thumb in mind.

The first broad principle should hearten the Brexiteers: over long periods, GDP per person in Britain has risen surprisingly steadily (see top chart). It has usually taken a war to cause that growth to deviate much from the underlying trend—although there was a long and painful slowdown during the 1920s and early 1930s, when Britain stuck doggedly to a contractionary monetary policy. As soon as Britain abandoned the gold standard in 1931, it was off again on a long streak of steady growth (briefly interrupted by the disruptions of the second world war).

Indeed, stable growth in output per person continued until the financial crisis of 2007-08. Joining the EU in 1973 does not seem to have accelerated it much, just as crashing out of Europe's system of pegged exchange rates in 1992 did not slow it down. Other seminal events—the loss of Britain's empire in the post-war years, or its balance-of-payments crisis and IMF bail-out in 1976—also seem to have had no impact on the trend.

Past performance is no guarantee of future returns, but Britain's history suggests that the costs of Brexit will probably not be as large or as lasting as the more dire prognostications maintain. As the Remain campaign often points out, membership of the European Union has not prevented Britain being one of the most

flexible, and least regulation-bound economies in the rich world. That flexibility would help Britain adjust to the shock of Brexit, as would the demand-boosting drop in the pound that would almost certainly follow a vote to leave.

However, a modest cost is still a cost. Moreover, whether a member of the EU or not, Britain is a European country, deeply and irrevocably linked to the fortunes of the continent. As annoying as it must be to the Leave campaign, only 21 miles (33km) of the English Channel separate Britain from France (and there is no distance at all between Northern Ireland and the Republic of Ireland, or Gibraltar and Spain). From Paris, Brussels and Amsterdam, it is a far shorter train journey to London than to Berlin. Britain is thoroughly, helplessly European, and always has been, since its first prehistoric settlers blundered over the land-bridge from the continent.

The European connection has big implications. Trade with far-off countries is costly, in terms of money and time. A paper published in 2012 by David Hummels of Purdue University and Georg Schaur of the University of Tennessee finds that every day goods are in transit adds a cost equivalent to a tariff of between 0.6% and 2.1%. Countries therefore trade most heavily with close neighbours. More than 50 years ago Jan Tinbergen, a Dutch economist, observed that trade seemed to follow a "gravity model", meaning that trade flows were a function of both the distance between trading partners and their size (or economic "mass").

Britain sits cheek-by-jowl with big European economies. They were Britain's dominant trading partners three centuries ago, when Europe accounted for 75% of British trade. And they are Britain's dominant trading partners now, accounting for roughly 50% of its trade, despite the fact that the rest of the world accounts for a much bigger share of global economic activity now than it did in the 18th century (see bottom chart).

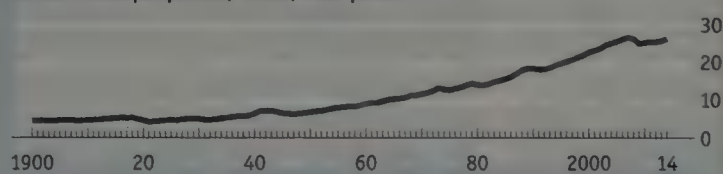
In fact, trade between Britain and the rest of the EU is larger than geography alone would predict, according to a recent analysis by the Centre for European Reform, a think-tank. It calculates that the flow of goods and services across the Channel is 55% greater than distance and economic mass alone would imply. What is more, that extra activity is a genuine bonus. It is almost entirely made up of new economic activity that would not otherwise take place, rather than exchanges diverted from partners outside the EU by the single market's external tariff. The integration fostered by European institutions nurtures cross-border supply chains and trade in services—a British speciality. Britain's exports of services to the EU are larger than those to North America, Japan and the BRICS combined. The EU, in effect, shrinks the distance between European economies even further.

Tilting at geography

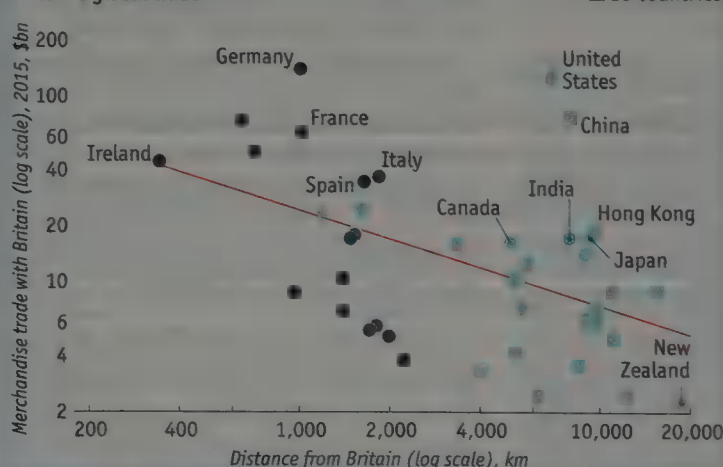
In other words, the push for Brexit is quixotic. However close the cultural affinities between Britain and its partners in the Anglosphere, the contribution of their trade to British output is much smaller than the EU's, as are the contributions of the world's big emerging economies. A Brexit would not delink Britain's economy from the rest of Europe; it would merely worsen the terms on which trade is conducted and reduce Britain's influence in European affairs. History suggests that the choice to leave the EU would probably not prove a calamitous one in economic terms. That does not mean it would be astute. ■

Keep your friends close

Britain's GDP per person, £'000, 2011 prices



Britain's global trade



Sources: ONS; IMF; Bank of England



The machine is intended to make prototypes as the polymers are not yet robust enough for a final product. Nevertheless, that allows a manufacturer of trainers, for instance, to print a complete shoe in one ►►

Economist.com/science

go, with a rubbery sole and a leather-like upper. The ability to make realistic prototypes greatly speeds up product approval and the time it takes to get to market.

Increasingly, however, 3D-printed objects are being produced as finished items, rather than as models or prototypes. This leads consultants at PwC to conclude in a new report that additive manufacturing "is crossing from a period of hype and experimentation into one of rapid maturation". Their research found more than two-thirds of American manufacturers are now using 3D printing in some form or the other.

Another 3D-printing process used by Stratasy builds parts layer by layer, by heating and extruding thermoplastic filaments. Airbus now uses these machines to print internal cabin fittings for its new A350 XWB airliner. The printers use a resin that meets the safety standards on aircraft. As airlines often specify custom fittings, 3D printing saves on re-tooling. It also allows multiple components to be consolidated into a single part, which reduces assembly costs. It will not be long, some in the industry reckon, before carmakers will offer interior customisation using 3D printers, too.

Although further development is needed to speed up additive-manufacturing systems and improve the surface finish, the technology is already trusted enough to be used in products that have to withstand high stresses and strains. GE has spent \$50m installing a 3D-printing facility at a plant in Auburn, Alabama, to print up to 40,000 fuel nozzles a year for the new LEAP jet engine it is making in partnership with Snecma, a French company. The nozzles will be printed in one go, instead of being assembled from 20 different parts. They are made from a powered "super alloy" of cobalt, chrome and molybdenum. The finished item will be 25% lighter and five times more durable than a fuel nozzle made with conventional processes.

Materials companies are coming up with more and more specialised ingredients for additive manufacturing. Alcoa, a leading producer of aluminium, recently said it would supply Airbus with 3D-printed titanium fuselage parts and the pylons used to attach engines to wings. Alcoa is spending \$60m expanding its R&D centre in Pennsylvania to accelerate the development of advanced 3D-printing materials and processes.

Large 3D printers are also emerging to make big things. Oak Ridge National Laboratory in Tennessee is working with a company called Local Motors to print cars, or at least much of their structure, using a blend of plastic and carbon fibre. The lab has also teamed up with Skidmore, Owings and Merrill, a firm of architects, to print substantial sections of buildings. The idea is to develop an additive-building process that results in no waste.

Some factory bosses have said that 3D

Welding and forming

Getting the pulse racing

A cleaner, sharper way to weld and shape metals

DURING the first world war it was observed that when armour plating was hit by shrapnel some of the bits not only embedded themselves into the metal but ended up welded to it, a process that normally takes a great deal of heat. Laboratory tests later showed that if one material is accelerated fast enough into another they become plastic at the point of contact and fuse together, even at room temperature. This led to a process called explosive welding which, as its name suggests, uses chemical explosives spread over the top of a sheet of one material to blast it into a sheet below.

Explosive welding, for obvious reasons, is usually carried out in tunnels under mountains or in remote deserts. It is often employed to cover steel plate with a more expensive anti-corrosion layer of stainless steel or nickel alloy. This clad plate is typically used in chemical plants. Now the same idea, minus the explosives, is beginning to be used inside factories to make products ranging from white goods to aircraft and cars.

The process, known as magnetic-

pulse welding, works a bit like the Large Hadron Collider near Geneva, accelerating materials into each other with extremely powerful magnetic forces, but on a less grand scale and with components rather than atomic particles. Bmax, based in Toulouse, France, has been developing the technology to produce machines that both weld components and shape them.

To do this two tubes, for example, are fitted together and placed inside one of the firm's machines, where a coil generates an intense electromagnetic pulse in one of the tubes. This propels it into the other, over a distance of only a millimetre or so but in just a matter of microseconds (millionths of a second). When the two materials are forced together at such intensity, the atoms at the point of contact start sharing electrons, which fuses the components together. As no heat or melting is involved, dissimilar and difficult-to-weld materials can be joined, such as aluminium to copper and nickel to titanium. The same process can be used to shape materials, slamming down a sheet of metal onto a mould to make, say, the crease lines in the skin of a car door. Normally this is done with giant and noisy stamping presses.

A combination of factors has stimulated interest in the technology, says Rani Plaut, Bmax's chief executive. Because the process operates at room temperature without clouds of welding sparks and fumes, it is cleaner and saves energy. It also produces stronger joins as conventional welds can be prone to corrosion. There is aesthetic value too, he adds: fused welds look much tidier than blobs of molten weld. And in shaping panels, lines can be made sharper than with conventional pressing. A process with roots in the noise and chaos of war may make the factory of the future a much quieter and cleaner place.



printing will never replace mass manufacturing. Perhaps, but it does not have to in order to transform production processes. Additive-manufacturing systems are being mashed together with traditional production methods, which themselves are improving with digital technologies. Even old-fashioned metal bashing and welding is going high-tech (see box).

Perhaps the surest evidence comes from China. LITE-ON, a leading contract manufacturer, has just installed a set of 3D printers in a Guangzhou factory that makes millions of smartphones and other

portable consumer electronics. The printers, made by Optomec, an Albuquerque-based firm, use a process called Aerosol Jet to focus a mist of microdroplets into a tightly controlled beam, which can print features as small as 10 microns (millionths of a metre). LITE-ON is using the machines to print electronic circuits, such as antennae and sensors, directly into products instead of making those components separately and assembling them into the devices either by robot or by hand. When a manufacturing technology arrives in the workshop of the world, it really is coming of age. ■

Viral infections

General knowledge

Progress towards ■ broad antiviral treatment

IN THE medical armoury vaccines are a wonderful piece of ammunition. But they are like bullets that can hit one target only. Different vaccines are needed to prevent specific viral infections. If a person is already ill, vaccines won't help. Various antiviral drugs might, shortening the time people are ill or preventing serious complications. The trouble is viruses are a moving target because they can evolve rapidly. Researchers have tinkered with some antiviral treatments that might work against a wide spectrum of diseases, but all have had shortcomings. Now one group thinks they have found a method that might protect cells in the body from a viral invasion.

The new research, led by James Hedrick of the IBM Almaden Research Center in California, Naoki Yamamoto of the National University of Singapore and Yi Yan Yang of the Institute of Bioengineering and Nanotechnology, also in Singapore, stems from an old tactic that has been problematic in the past. All viruses depend upon similar electrical charges at their surfaces to connect to the cells that they are trying to infect. If the charges on viruses and cells could somehow be meddled with, it should make things harder for the virus to infect the host.

Lots of experiments have demonstrated that the theory is sound. Unfortunately, many of the materials used to interfere with the electrical charges have also been toxic to the cells they are supposed to protect. Dr Hedrick and his colleagues speculated that it might be possible to work around this problem with polyethylenimine. Previous work has shown this polymer can thwart a viral invasion, but it has groups of amines, derivatives of ammonia, on the ends of its molecular branches and these can kill healthy cells.

To prevent the amine groups from causing collateral damage the researchers wondered if it was possible to neutralise them with more benign compounds. To find a suitable candidate the team carried out an extensive search of the scientific literature. Eventually they found a type of sugar, known as mannose, which looked fit for the job. A series of studies showed that mannose largely did stop the amines from making contact with cells, while at the same time allowing the polymer to attach to a variety of viruses.

To discover which form of mannose would work best, the researchers bound a number of versions of the sugar, called

moieties, to the polyethylenimine. They then treated cell cultures with their creations before exposing them to a wide range of viruses, including those that cause influenza, dengue fever, Ebola and herpes.

As they report in *Macromolecules*, their technique worked. Cell cultures exposed to the mannose-decorated polyethylenimine molecules proved invulnerable to every virus that they studied. More important, they found that the newly created material is not toxic at the concentrations that were needed to meddle with the surface charges on viruses.

As with most research, there is a long way to go before the new material could be developed and tested to see if it can be used in humans, perhaps as a form of general-purpose antiviral medicine. A more immediate use might be as a sanitary wipe to prevent viruses spreading. ■

Portable devices

Buddy, can you spare a watt?

Trading power could free users from dead-battery tyranny

ONE of the most annoying features of smartphones is that they run out of power just when you need it most. After a day of e-mailing, streaming music, downloading podcasts, watching cat videos and snapping selfies, a device can easily be left without enough charge to make an emergency call. What would help, reckons Paul Worgan of the University of Bristol, in England, is to give portable devices the ability to share some of their power.

Mr Worgan and his colleagues have come up with a wireless-charging system which they call PowerShake. To use it someone holds a phone with an expiring battery against another device—a phone, or even a smartwatch or a fitness band—and this initiates a power transfer from one to the other. Some 12 seconds of contact provides enough juice to make a one-minute telephone call. One minute of contact would allow, say, a four minute music video to be watched. The researchers will present their idea to CHI2016, a conference on computer-human interaction, in San Jose, California, in May.



Wireless charging of mobile devices is not new. Many smartphones and watches can be placed on a charging mat, allowing an alternating magnetic field from a slim copper coil in the mat to induce a current in another coil inside the device to charge its battery. There are two dominant standards: Qi, from an industry body called the Wireless Power Consortium, and PMA, named after its originator, the Power Matters Alliance. Both have big backers: Starbucks, for instance, is building PMA-based chargers into its coffee-shop tables. IKEA is building Qi chargers into bedside tables and desk-lamp bases. Samsung's Galaxy S6 smartphone supports both formats.

Initially, the Bristol team have opted to customise the Qi coil for PowerShake experiments. They cannot use the existing Qi format because it is not designed for inductive charging next to human skin. So, to conform to international regulations, they are looking at including a ferrite and copper shield between the coil and someone's skin, which is necessary on devices like a fitness band or smartwatch.

In testing their idea out, however, the researchers ran into a less technical problem. Some people said they were reluctant to offer their precious battery charge to others. A form of inducement might help. Vassilis Kostakos, a computer scientist at Oulu University in Finland, says one answer is cash. Anticipating the arrival of technologies like PowerShake, Mr Kostakos and his colleagues set up an auction for device power with 22 volunteers. The results, also due to be released at CHI2016, showed people wanted €1.76 (\$2.00) to sell 10% of their device's power when their battery was fully charged, but €4.41 to offload 10% when the charge had depleted to 20%. On average, 10% of device power sold for €2.22. Of course, if you appear desperate to see that cat video, the price may go up. ■

Augmented reality

Here's looking at you

Smart glasses may have a big future at work

AHEAD of its time or just plain weird? Whatever the answer, Google last year stopped selling consumer prototypes of its controversial Google Glass, a camera-equipped head-mounted display resembling a pair of spectacles. Using a process known as augmented reality (AR), Glass can display in the viewer's line of sight information about what they are looking at, among other things.

What consumers found unusual, factories and other businesses may not. Workers are often required to wear odd-looking safety equipment, such as helmets and protective glasses. It is more normal to be filmed. And indeed, the workplace is where AR equipment is taking hold, which is why Google is revamping Glass with business uses in mind.

Engineers that work on and repair transformers that distribute electricity can spend up to half their time searching for technical data in assorted software, databases, activity logs and even old-fashioned filing cabinets, says Alain Dedieu, a vice-president in the Shanghai operations of Schneider Electric. The French multinational is now testing AR systems that make the technical information that is being sought appear before their engineers' eyes.

Schneider is doing this with headsets and tablet computers, both of which superimpose information onto an image of the object on either the lenses in the headset or the screen on a tablet. The sys-

tem uses image-recognition software, and sometimes a bar code stuck on equipment, to determine what the piece of kit is. It then wirelessly fetches any data relevant to it, such as its optimum operating temperature, fluid levels and maintenance history.

Software then "sticks" that information to the image on the screen, so that it disappears if the camera is turned to something else. The data reappear if the equipment comes back into view. Early results from China suggest AR can slash the amount of time engineers spend looking for information to about a tenth of current levels, says Mr Dedieu.

One in the eye

In America, ITAMCO, an Indiana-based engineering company, has found similar benefits. Some of its operators use an AR system with Google Glass headsets. Having data automatically pop into their field of view saves enough time for two machine operators to do work that previously required three or four, says Joel Neidig, an ITAMCO technologist who has helped clients including Caterpillar and General Electric set up similar systems.

The use of AR systems in Europe is proving more difficult to implement because some unions deem the technology to be a sneaky way for management to monitor workers, says Mr Neidig. He maintains management wants to reduce accidents by ensuring workers see proper procedures

and danger alerts.

Some European firms are using the technology. Siemens, a German engineering giant, is using JoinPad, an Italian firm, to set up an AR system to help with a number of tasks, including the prevention of hazardous and costly oil fires in high-voltage transformers. Productivity gains from AR are not always dramatic, but 20% or more is typical, says Nicolas Pezzarossa of JoinPad.

The technology still has room for improvement. Around 200 workers using AR on tablets at Newport News Shipbuilding in Virginia don't yet rely on it to find the exact location to install critical equipment. But it still beats flipping through lots of paper diagrams and determining if one piece of equipment has to be installed above or below another, says Patrick Ryan, an engineer overseeing the roll-out of AR in building an aircraft-carrier and half-a-dozen submarines for the US Navy. Once the price of headsets come down, the firm may well start using them as well as tablets.

Headset prices are getting keener. Atheer, a Silicon Valley firm, will begin shipping its Air Smart Glasses to industrial users within a few months for some \$4,000; a current model for software developers costs \$9,000. The Smart Helmet, an AR headset made by DAQRI, a Los Angeles firm, is being used at KSP Steel in Kazakhstan. It costs \$10,000, but also doubles as a hard-hat and eye shield. It automatically switches off instructions if hand movements detected by the camera suggest that the user has learned what to do.

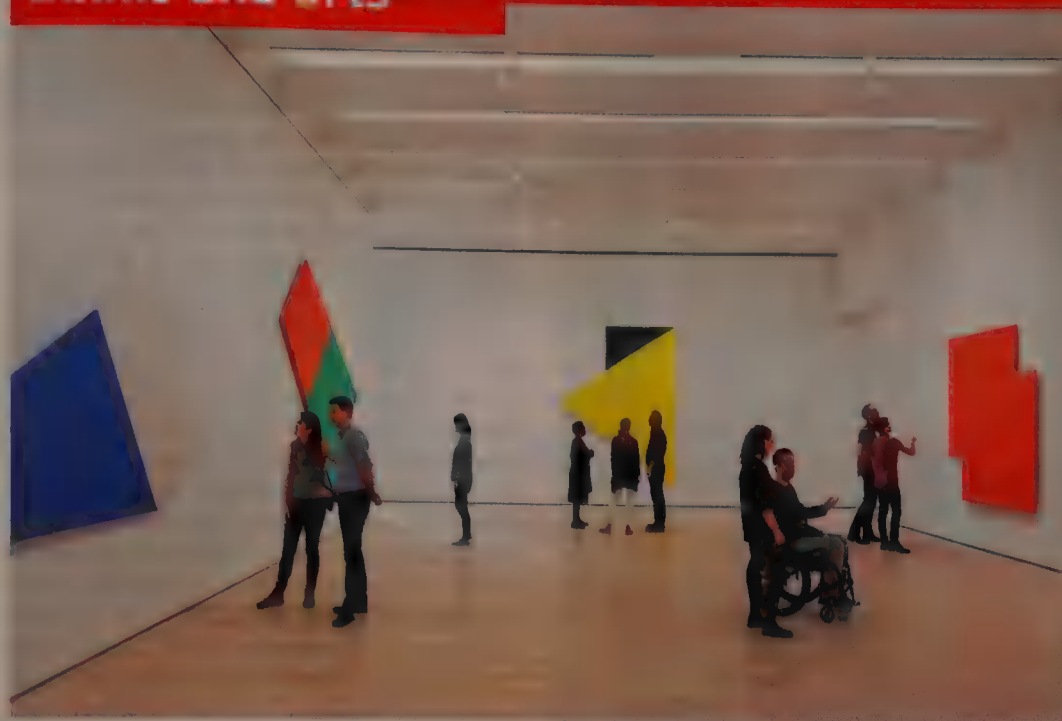
Headsets can also augment communications. Microsoft's HoloLens, an AR headset that is being used on the International Space Station, sends video of the astronaut's field of view to a tablet at mission control on Earth, where a technician can draw on the touchscreen—putting, say, a circle around a switch that has to be flipped—and have that circle appear in the astronaut's view. Vuzix, an American firm, is developing smartglasses for use in a variety of business locations, from warehouses to field training.

Augmedix, a San Francisco company, is developing a Glass-based system for hospitals and clinics. The idea is that rather than burying their head in a computer screen when a patient walks into the consulting room, a doctor will be able to look at them and see that person's medical history, prescriptions and other information in his field of view. Augmedix reckons the system can increase a doctor's productivity by more than 30%.

Whether people become comfortable with such devices in everyday life remains to be seen. It is not unusual for new technologies to take off in business first, as mobile phones did and Apple Watches are with some firms using them to send employees messages. In the workplace, smart glasses are already less of a spectacle. ■



The view is very different from in here



Contemporary art in America

Going public

SAN FRANCISCO

The biggest contemporary-art museum in America will be unveiled next month. Building it took ingenuity, persuasiveness—and a lot of money

IN MANY countries rich art-buyers are deserting public institutions in favour of building their own private museums. Not in the Bay Area, where some 200 collectors have been persuaded to donate over 4,000 works of art to the new San Francisco Museum of Modern Art (SFMOMA). As if that were not enough, they have also contributed generously to a new \$305m building designed by Snøhetta, a Norwegian firm, and to a healthy endowment of \$245m. When it opens on May 14th, SFMOMA will be the largest museum of modern and contemporary art in America.

Five years in the making, the new SFMOMA reflects the confluence of old money from the American West and new wealth from Silicon Valley. And it proves, in a way that few other projects could, how important collecting contemporary art has become as a measure of wealth, taste, ambition and civic duty.

Nearly three-quarters of the works on show in the inaugural exhibitions are recent gifts. Neal Benezra, the director, engineered a "Campaign for Art" in which the museum cherry-picked works from important local collections. "We did not just drop a net to see what we could catch," he explains. The museum has focused on filling gaps in its collection and bolstering areas where it is already strong.

Correction: In last week's issue we had Burt Lancaster pronouncing the most famous line from "The Leopard". It was, of course, the leopard's nephew, Tancredi, played in the film by Alain Delon. Apologies.

Robin Wright, a lifelong philanthropist and vice-chair of the board, helped SFMOMA solicit gifts. She gave the museum a list of the works in her collection; the museum chose 36 pieces, including a rare Ed Ruscha painting from 1973 entitled "Evil" and made with the artist's own blood. "It's hard to imagine dying," says Ms Wright. "And who could be a better guardian of your art once you're gone?" Collectors can enjoy knowing that their art pieces are (literally) museum-worthy, and that they will return home when the museum changes displays. It all, says Mr Benezra, contributes to "great estate planning".

A decade ago, many donations to American museums were "fractional gifts"; collectors could benefit from tax write-offs on a proportion of the changing (often increasing) market value of their works. When the rules were changed by the Pension Protection Act of 2006, the practice became financially unattractive and art donations fell.

Another system known as "promised gifts" began to take precedence. SFMOMA has done a good job of spelling out the psychological and social benefits of this form of philanthropy. Just as it was confirming Ms Wright's gift, Charles Schwab, chairman of the board, and his wife Helen made an offer of their own—27 works, including stellar paintings by Fernand Léger, Jackson Pollock and Francis Bacon. Soon afterwards, seven other important collectors pledged over 100 more works.

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By far the largest contribution came from Donald and Doris Fisher, co-founders of Gap, a clothing chain. In September 2009, just before he died, Mr Fisher shook hands with Mr Benezra on a deal which granted SFMOMA a 100-year loan of 1,100 works, including 25 by Alexander Calder, 22 Gerhard Richters, 18 Andy Warhols and 18 Ellsworth Kellys (some of which can be seen above).

Fascinated by the creative process, the Fishers had bought "in depth", sometimes following an artist's career over several decades. "In many museums, you see one of this and one of that," says Bob Fisher, the eldest of three Fisher sons who is president of the SFMOMA board. "You gain an understanding of what Abstract Expressionism or Minimalism is, but you aren't given the chance to appreciate the mind of an artist." Neither the Fishers nor the museum will disclose the value of the collection, but experts suggest it is worth well over \$1 billion.

The partnership of SFMOMA and the Fishers is unprecedented, and it comes with strict rules. Every ten years, the museum must put on an exhibition that focuses exclusively on the Fisher collection. At other times, the museum can mix the Fisher works with those from its own and other collections. SFMOMA will also take care of conserving and promoting the art. In return, the Fishers contributed an undisclosed "very generous" sum towards the new building and its endowment.

The challenge of presenting this onslaught of gifts to the public has fallen principally to Gary Garrels, senior curator of painting and sculpture, who spent three years contemplating scale models of the museum's seven exhibition floors and has been installing the works since December. The museum decided to include at least one work from each of the campaign's 231 donors, so the installation will offer a portrait of the Bay Area collecting community.

▶ rather than an art-historical narrative.

Visitors can enter the museum through the elegant new Snøhetta structure into the sort of grand light-filled space that has become a standard requirement of art museums (Tate Modern, which will open its own new extension a month after SFMOMA, will have one too). In San Francisco the space will be filled with a classic rusted-steel sculpture by Richard Serra; upstairs in the atrium is an uncharacteristically joyful, blue-and-white wall drawing by Sol LeWitt entitled "Loopy Doopy".

What will make SFMOMA unique is the enfilade of rooms offering mini-retrospectives of individual artists. Thanks to the bounteous gifts the museum has received, these are so good they will become destinations in themselves. One has an exuberant range of mobiles and other sculptures by Calder, who went to the same San Francisco high school as Donald Fisher. Another, nicknamed "The Chapel", is an octagonal room with a suite of seven serenely geometric paintings by Agnes Martin.

San Francisco is the Wall Street of the West, but it is also the historical hub of hippies, gay liberation, the farm-to-table movement and digital culture. It is a creative city that sprang from nothing in 1848, when the Gold Rush hit. Its citizens know all too well that culture does not just happen; it has to be made, underwritten, nurtured. "One thing I've learned through this fund-raising process," says the museum's director, "is that this community loves a big idea. They are willing to take chances and risk failure, but they want the next awesome idea." ■

China's economy

Neither a bull nor a bear be

China's Economy: What Everyone Needs to Know. By Arthur Kroeber. Oxford University Press; 319 pages; \$16.95 and £10.99

Street of Eternal Happiness: Big City Dreams Along a Shanghai Road. By Rob Schmitz. Crown; 326 pages; \$28. John Murray; £20

CHINA'S economy inspires extreme and, often, diametrically opposed views. There is the bear case: growth is severely unbalanced, waste unbearably high and collapse nigh. And the bullish: past performance is proof of the government's managerial skill, innovation is blossoming and China will soon surpass America as the global economic powerhouse. But between these extremes lies a wide expanse of "muddle-through" alternatives, which hold that China's future will be far less spectacular: neither especially bright nor very gloomy.



Lucky for some

If the notion of a middle way sounds intuitively appealing, Arthur Kroeber's book brings rigour to the debate to show why it is also the most likely outcome. A longtime China analyst now managing an independent research firm, he launches an assault, albeit courteously worded, on conventional wisdom from the two opposing camps. What emerges is a nuanced take on an economy facing serious challenges, ones that do not spell its collapse but could prove intractable all the same.

Many of the commonly heard warnings about China's economy are exaggerated. Take the opinion that it suffers from pervasive over-investment. At the start of its reform period in 1980, China had a paltry stock of factories, infrastructure and homes. The tried-and-tested way for an economy to modernise is to accumulate all of these, requiring a lengthy period in which investment grows faster than GDP. China's experience in this regard has not been dramatically different from that of Japan, South Korea and Taiwan in their heady years; its investment mania has run on too long, but the benefits of the 30-year boom outweigh the waste. Most rich economies have capital stocks more than three times as big as their GDP; China's was still just 2.4 times as high in 2010.

Similarly, fears about a property crash are overblown. China did not privatise home ownership until the 1990s, and prices were still far below their true value in the early 2000s, laying the groundwork for a surge. The leverage that caused havoc in property markets elsewhere in the last decade is not an issue: minimum down-payments are still 20% and buyers often pay closer to half in cash. Far more problematic is an excess of high-end homes and

insufficient supply of affordable housing. The solution is more, not less, government involvement in helping home construction and guaranteeing mortgages.

Ultimately China should be able to do this, because marshalling resources to build stuff is its strength. But it is also clear that its growth model needs to change. Since the global financial crisis of 2008, it has become too reliant on debt and productivity growth has steadily fallen. Mr Kroeber lays out grounds for pessimism. Xi Jinping, China's president, seems intent on a model of "Leninist capitalism", reinforcing the Communist Party's political grip, while also strengthening the economy with market reforms. This can work for a while: China still has scope to grow through industrial reforms, urbanisation and partial deregulation. Yet in order to become a high-income country, it needs innovation and efficiency, which are inconsistent with an overweening government. The model is not broken, but it is clearly running out of steam.

For all the clarity of Mr Kroeber's writing, his book is heavy going for the general reader. Rob Schmitz's book makes a useful complement. Its approach is the opposite: a portrait of China from the stories of a single Shanghai street. Still, there is much to link the two books in their marvelling at what China has accomplished, mixed with sadness at the human costs of its breakneck development.

Changle Road, the "Street of Eternal Happiness" of the title, is a poignant microcosm. Most visitors see only its exterior: a tree-lined street with expensive apartment buildings and trendy cafés. Mr Schmitz, a radio correspondent, chose to live there. Over the years, he learned about the ambitions, corruption and daily struggles seething just beneath its surface.

One neighbour, from a poor village, lifted herself from rural poverty into relative wealth by running a flower shop. Another is an older woman easily seduced by get-rich-quick investments, burning through her savings on one far-fetched idea after another. Most harrowing are the lives of the residents clinging to their homes on an abandoned block. The local government tried to seize their land. Demanding the compensation promised by law, they protested, and have faced harassment and intimidation ever since.

Yet coursing under even the bleakest stories is a sense of optimism that tomorrow will be better, with some evidence to support it. Families invest in their children's education and, in time, reap the dividends. Migrant workers transform themselves from factory workers into cooks as the economy changes. Small entrepreneurs scrape their way to small successes. The energy and talents of China's people are undiminished. The task for the government is to give them the space to thrive. ■

Eastern Europe

Backwards and forwards

The Great Departure: Mass Migration from Eastern Europe and the Making of the Free World. By Tara Zahra. W.W. Norton; 392 pages; \$28.95 and £18.99

EASTERN Europe is in the midst of a migration panic. Milos Zeman, the Czech Republic's president, has called the influx of refugees to the continent an "organised invasion"; Jaroslaw Kaczynski, chairman of Poland's ruling Law and Justice party, warns that they may be carrying "very dangerous diseases". But anxieties about migration in the region are nothing new. In 1890 a lawyer in Galicia described it as "one of the most important, burning problems of the day". Yet as Tara Zahra recounts in *"The Great Departure"*, a perceptive history of migration and eastern Europe, until very recently that problem was not immigration but emigration.

In the late 19th and early 20th centuries, emigration was considered a "fever", that could empty villages. For most, the destination was America: 300,000 made the journey from Austria-Hungary in 1907, the highest number to arrive from one country in a single year. The story of their arrival there has been told many times; Ms Zahra, of the University of Chicago, describes the impact that leaving had on their homelands and the debates it provoked. The departure of so many men of working age, for example, created new opportunities: in one Hungarian town women reportedly took over most of the positions in local government. But it alarmed local elites. Polish nobles were deprived of cheap agricultural labour, Austrian and Hungarian military officials of conscripts.

The authorities quickly found a convenient scapegoat. They fined and arrested Austria-Hungary's travel agents, accusing them of duping gullible peasants into leaving the country. This was part of a wider propaganda battle, in which newspapers ran lurid items about violence and exploitation in America. After the first world war, scare stories no longer sufficed. Populations had been devastated, first by the fighting and then by the Spanish flu. The region's new nation-states quickly deemed emigration an existential threat. In 1920 Poland introduced stricter passport controls; Czechoslovakia sought to lure back expatriates to boost the national stock.

Emigration did have its uses for some, though. Politicians realised they could exploit migration policy to remove unwanted minorities. Despite the passport restrictions, in Poland Jews were encouraged to emigrate. By the mid-1930s many politi-

cians in the region were in favour of mass Jewish emigration. Seeking a solution to what was widely referred to as the "Jewish problem", Western officials fruitlessly considered places—Madagascar, British Guyana—where eastern European Jews could be resettled. As Ms Zahra points out, these efforts blurred the lines between "rescue and removal...emigration and expulsion", while doing little to save Jews from the horrors that awaited them. Even before the Holocaust, removing Jews from eastern Europe had become politically acceptable.

For the author the Iron Curtain was the "culmination" of eastern Europe's struggle against emigration. Communist regimes had long warned of the misery that awaited emigrants to the West; now, however, the political stakes were far higher. Embarrassed by defections to the West, eastern-European governments sought to woo back other émigrés, offering them financial incentives even as they denounced the greed of capitalist societies. But still they were willing to let certain citizens leave. Dissidents and unwelcome minorities could be sold to West Germany or Israel in exchange for substantial ransoms: in the 1970s, Nicolae Ceausescu said that Romania's best export commodities were "Jews, Germans and oil".

Eastern Europeans now enjoy the freedom of movement that so many longed for under communism. The expansion of the EU in 2004 gave Poles, Hungarians and Czechs, among others, the right to live anywhere in the union, stimulating the biggest wave of east-west migration in a century. Migration today is never one-way. Some people spend just a couple of years in the West before returning. Others never leave at all. Now that east Europeans can move as they please, for many true freedom is the "freedom to stay home". ■



Queen Elizabeth I

Smart redhead

Elizabeth: The Forgotten Years. By John Guy. Viking; 490 pages; \$35 and £25

THE glorification and defamation of the ageing Elizabeth I is almost as old as the queen herself. Few English monarchs have been subjected to as much historical bias and mythmaking. She has been painted as the defiant Gloriana of Spenserian epic, uniting the land in religion and peace, and the mercurial crone lusting after her younger courtiers. Neither is true, as John Guy shows in this account of her later years.

Recent biographers have focused on the early decades, with Elizabeth's last years acting as a postscript to the beheading of Mary Queen of Scots and the defeat of the Spanish Armada. Mr Guy argues that this period is crucial to understanding Elizabeth; the threat to the realm did not abate after these two episodes. Four more armadas were sent to invade the British Isles, although in the end good luck and bad weather scuppered their plans.

Courtiers gained Elizabeth's favour through exploits of land and sea, to the consternation of the old nobility. Walter Raleigh dazzled her majesty with his vision for an American colony. Robert Devereux, Earl of Essex, strove to woo her with plots to plunder Spanish ships. Neither was very successful as the old order closed ranks to frustrate their ambitions. When Essex, powerless after losing campaigns in Portugal, France and Ireland, attempted to ignite a rebellion against Elizabeth in London, he was beheaded.

The master of the old order was the lord high treasurer, William Cecil, Lord Burghley. He controlled access to state papers, briefed England's ambassadors and drafted royal correspondence. Only a sixth of Elizabeth's 15,000-odd surviving letters and warrants were penned or dictated by her, Mr Guy reckons. Burghley was so powerful through much of Elizabeth's reign that the early period could be renamed the Cecilian age. But the queen lost faith in him in 1586, when he plotted to accuse Mary Queen of Scots of treason. A believer in a divinely appointed monarchy, Elizabeth resented having her hand forced over her rival's execution and wavered over whether to kill a sovereign chosen by God. It was only when she was in her early 50s, Mr Guy thinks, that Elizabeth at last asserted supreme power over Burghley.

But the lord high treasurer was not a man to give up easily. He was instrumental in sending Essex on doomed foreign missions. Burghley hired an actor to serenade the queen with pageantry and poetry with ►►

► a none-too-subtle motif that she should appoint his son to the Privy Council. Robert Cecil eventually became secretary of state as such and survived in the role into James I's reign in true Cecilian fashion.

One crucial question is why Essex survived as long as he did. He bungled military adventures and had little political shrewdness, yet he held influence all through the 1590s. Previous biographers have hinted that the sexagenarian queen was smitten by the buccaneer in his 30s. Mr Guy plays down any sexual intrigue, suggesting instead that she sought a courtier to curb the Cecils' power. Yet it is to Elizabeth's discredit that she held on to a man who frustrated her foreign policy and inflamed factionalism at court.

Admirers of Elizabeth will take solace in few of these pages. Far from the war leader of legend, she seeks peace with Spain while it builds its invasion fleets. She pays war veterans poorly and hangs her own limping soldiers when they demand more money. She roots out Catholic gentry and is complicit in their torture. What emerges from the author's great efforts to mine the archives for a truer picture is a more flawed Elizabeth—but perhaps a more human one. ■

Papa Wemba

The king of the rumba

A revered Congolese musician dies on stage

MOST peoples measure their national history in rulers; Britons count back in monarchs, Americans in presidents. Many Congolese like to reflect on five generations of musicians, whose languorous rumbas and faster modern beats, adored across Africa and beyond, have served them better than any government. Papa Wemba, who died on stage in Abidjan, Ivory Coast, on April 24th, was of the third musical generation. But as the most travelled of Congo's peripatetic singers, possessed of a distinctive and beautiful voice, he often seemed to stand for them all.

Jules Shungu Wembadio Pene Kikumba, as he was properly called, was born in Lubefu, central Congo, in 1949. This was at the end of a decade of growth, driven partly by wartime demand for Congolese resources. A swelling music scene in the colonial capital, Léopoldville, catering for a rising African middle class, was one result. It was fuelled by enthusiasm for the new Congolese rumba, a sound the first generation of stars had repurposed from the Cuban songs they discovered on a budget range of ten-inch, 78rpm records put out by a British label, "His Master's Voice". Wemba moved to the city soon after.

The adopted son of a *pleureuse*, a professional singer at funerals, he learned to sing in church, perfecting the keening falsetto that would remain his trademark. Church music influenced his songwriting, too. He once said: "With religious music, the minor key always recurs. When I compose songs, I often use the minor key."

Wemba's first band, Zaiko Langa Langa, launched in 1969, announced him as an innovator, not an acolyte, however. Its name came from a garbled folksaying about the Zaire, or Congo, river—*Zaire ya*

bankoko, "Zaire of our ancestors". But Zaiko was rebellious, not folkish. Reacting against the big bands of the latest titans of the rumba, such as François "Franco" Luambo, Zaiko swapped brass instruments for a snare drum and electric guitars, and upped the tempo. The critics were scandalised; but this was a time of hope and change in Congo which Zaiko's thrusting rhythms captured. After five years of upheaval and war, following Belgium's abrupt exit from the country in 1960, Congo was enjoying a burst of optimism under Mobutu Sese Seko, its first dictator. By 1970 the Congolese were buying a million records a year.



His last hurrah

Then Mobutu lost the plot. He launched a nativist programme, "Zairianisation", which began as a cultural revivalist campaign and would end with the expropriation of white-owned industry, wrecking the economy. Wemba, who, like all Congo's star musicians, naturally maintained an ambivalent attitude to power—sometimes critical, but generally compliant—at first played along. He and his bandmates adopted folk instruments such as the *lokole*, a log-drum; he would also sometimes perform in traditional raffia skirts, wearing hats decorated with cowrie shells. But Wemba soon became associated with a more compelling and subversive fashion movement, the Religion Kitembo, or "worship of clothes", which was in part a sardonic comment on the charmless weeds and general decay that Zairianisation had brought.

Through the sad boulevards of Kinshasa—as the Congolese capital had been renamed—worshippers strutted (and they strut still) in glorious assemblages, perhaps matching a sharp suit with an ebony cane and a fur coat, quite possibly lifted from some faraway European boutique. They were also known as Sapeurs, after another of their names, in English, The Society of Ambience Makers and Elegant People; and Wemba—Le Pape de la Sape, "the Pope of Sapeurs"—was the movement's high priest. "Listen my love," he sang, "On our wedding day/The label will be Torrente/The label will be Giorgio Armani/The label will be Daniel Hechter/The label for the shoes will be J.M. Weston."

By now the star performer of several bands—including Viva La Musica, whose hit single "Ana Lengo" sold half a million copies in Africa—Wemba wanted more than a wilting Kinshasa could provide. In the early 1980s he moved to Paris, where he produced ballads in Lingala and pop versions of the rumba, more accessible to a Western audience that was increasingly eager for exotic "World" music. He sang with Stevie Wonder and toured with Peter Gabriel, whose Real World label produced one of his best-selling albums, "Emotion". He kept his feet in Congo, however—as was apparent, in 2003, when he was arrested in Paris, and briefly jailed, for smuggling dozens of Congolese into Europe as bogus members of his entourage.

His fans back in Kinshasa were aggrieved. The fine reputation of Congolese musicians is one of their country's last boasts. Many also believed Wemba, despite his success, had been overcharging desperate migrants for their passage. But they still turned out, in multitudes, to welcome him home to Kinshasa from prison. And when Wemba announced, at a packed press conference, that although he had reconnected with Jesus there, he still liked dancing and pretty girls, the crowd thundered with joy and relief. ■



INTERNATIONAL
ENERGY CHARTER

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Economic data

% change on year ago

	Gross domestic product			Industrial production latest	Consumer prices		Unemployment rate, %	Current-account balance		Budget balance % of GDP 2016†	Interest rates, % 10-year gov't bonds, latest	Currency units, per \$	
	latest	qtr* 2016†	2016†		latest	2016†		latest 12 months, \$bn	% of GDP 2016†			Apr 27th	year ago
United States	+2.0 Q4	+1.4	+2.0	-2.0 Mar	+0.9 Mar	+1.2	5.0 Mar	-484.1 Q4	-2.6	-2.5	1.93	-	-
China	+6.7 Q1	+4.5	+6.5	+6.8 Mar	+2.3 Mar	+1.7	4.0 Q1§	+330.6 Q4	+2.8	-3.0	2.79§§	6.49	6.22
Japan	+0.7 Q4	-1.1	+0.6	+0.1 Mar	nil Mar	+0.3	3.2 Mar	+147.9 Feb	+3.7	-6.2	-0.10	111	119
Britain	+2.1 Q1	+1.6	+2.0	-0.5 Feb	+0.5 Mar	+0.6	5.1 Jan††	-146.9 Q4	-4.2	-3.6	1.68	0.69	0.66
Canada	+0.5 Q4	+0.8	+1.6	+0.6 Jan	+1.3 Mar	+1.5	7.1 Mar	-51.6 Q4	-2.7	-1.4	1.50	1.26	1.21
Euro area	+1.6 Q4	+1.3	+1.4	+0.8 Feb	nil Mar	+0.3	10.3 Feb	+356.5 Feb	+2.8	-1.9	0.29	0.88	0.92
Austria	+1.1 Q4	+1.2	+1.1	+0.4 Feb	+0.7 Mar	+1.1	6.0 Feb	+9.6 Q4	+2.3	-2.0	0.67	0.88	0.92
Belgium	+1.4 Q4	+1.3	+1.3	+5.9 Feb	+2.2 Mar	+1.1	8.6 Feb	-0.1 Dec	+1.1	-2.3	0.67	0.88	0.92
France	+1.4 Q4	+1.3	+1.2	+0.6 Feb	-0.1 Mar	+0.2	10.2 Feb	-11.8 Feb†	-0.4	-3.5	0.64	0.88	0.92
Germany	+1.3 Q4	+1.1	+1.5	+1.2 Feb	+0.3 Mar	+0.3	6.2 Mar	+286.8 Feb	+7.7	+0.4	0.29	0.88	0.92
Greece	-0.7 Q4	+0.5	+1.4	-3.0 Feb	-1.5 Mar	+0.7	24.4 Jan	+0.3 Feb	+2.1	-3.9	8.99	0.88	0.92
Italy	+1.0 Q4	+0.4	+0.9	+1.2 Feb	-0.2 Mar	+0.3	11.7 Feb	+40.5 Feb	+1.9	-2.5	1.53	0.88	0.92
Netherlands	+1.6 Q4	+1.0	+1.5	+1.8 Feb	+0.6 Mar	+0.5	7.8 Mar	+68.8 Q4	+9.7	-1.6	0.48	0.88	0.92
Spain	+3.5 Q4	+3.3	+2.8	+5.9 Feb	-0.8 Mar	-0.4	20.4 Feb	+16.4 Jan	+1.0	-3.4	1.64	0.88	0.92
Czech Republic	+4.3 Q4	-0.1	+2.8	+5.6 Feb	+0.3 Mar	+1.5	6.1 Mar§	+1.5 Q4	-0.1	-1.6	0.50	23.9	25.2
Denmark	+0.4 Q4	+0.3	+1.3	+5.2 Feb	nil Mar	+0.7	4.3 Feb	+19.8 Feb	+7.1	-2.8	0.56	6.58	6.85
Norway	+0.1 Q4	-4.7	+1.5	+1.7 Feb	+3.3 Mar	+2.1	4.8 Jan††	+35.3 Q4	+11.6	+7.2	1.41	8.18	7.72
Poland	+4.3 Q4	+6.1	+3.5	+0.5 Mar	-0.9 Mar	+1.7	10.0 Mar§	-0.5 Feb	-2.1	-1.9	3.11	3.90	3.66
Russia	-3.8 Q4	na	-1.5	-0.4 Mar	+7.3 Mar	+8.4	6.0 Mar§	+51.3 Q1	+3.9	-2.2	9.16	65.9	51.8
Sweden	+4.5 Q4	+5.3	+3.3	+3.8 Feb	+0.8 Mar	+0.6	7.7 Mar§	+29.2 Q4	+6.2	-0.6	0.96	8.09	8.61
Switzerland	+0.4 Q4	+1.7	+1.1	-4.5 Q4	-0.9 Mar	-0.7	3.5 Mar	+75.9 Q4	+9.7	+0.3	-0.22	0.97	0.95
Turkey	+5.7 Q4	na	+3.3	+8.5 Feb	+7.5 Mar	+8.3	11.1 Jan§	-30.5 Feb	-4.6	-1.8	9.24	2.83	2.69
Australia	+3.0 Q4	+2.6	+2.5	+1.9 Q4	+1.3 Q1	+1.9	5.7 Mar	-56.0 Q4	-4.0	-2.0	2.61	1.32	1.27
Hong Kong	+1.9 Q4	+0.9	+2.1	-1.3 Q4	+3.0 Mar	+2.6	3.4 Mar††	+9.7 Q4	+2.6	-0.4	1.43	7.76	7.75
India	+7.3 Q4	+4.4	+7.5	+2.0 Feb	+4.8 Mar	+5.2	4.9 2013	-22.6 Q4	-1.0	-3.7	7.46	66.5	63.5
Indonesia	+5.0 Q4	na	+5.1	+2.9 Feb	+4.4 Mar	+4.7	6.2 Q3§	-17.8 Q4	-2.4	-1.9	7.51	13,195	12,980
Malaysia	+4.5 Q4	na	+5.5	+3.9 Feb	+2.6 Mar	+2.9	3.4 Feb§	+8.7 Q4	+2.7	-3.7	3.88	3.91	3.57
Pakistan	+5.5 2015**	na	+4.8	+2.8 Feb	+3.9 Mar	+5.4	5.9 2015	-2.3 Q1	-0.9	-4.6	8.41†††	105	102
Philippines	+6.3 Q4	+8.2	+6.3	+8.4 Feb	+1.1 Mar	+2.9	5.8 Q1§	+8.4 Dec	+3.6	-2.1	4.71	46.8	44.3
Singapore	+1.8 Q1	nil	+2.8	-0.5 Mar	-1.0 Mar	+1.3	1.9 Q1	+57.5 Q4	+20.4	+0.9	2.03	1.35	1.33
South Korea	+2.7 Q1	+1.5	+2.6	+2.4 Feb	+1.0 Mar	+1.3	4.3 Mar§	+107.9 Feb	+7.5	+0.5	1.81	1,148	1,073
Taiwan	-0.5 Q4	+2.2	+2.3	-3.6 Mar	+2.0 Mar	+1.0	3.9 Mar	+76.2 Q4	+12.3	-0.9	0.87	32.3	30.6
Thailand	+2.8 Q4	+3.2	+3.7	-1.6 Feb	-0.5 Mar	+2.7	0.9 Feb§	+31.6 Q4	+2.3	-2.1	2.15	35.2	32.7
Argentina	+2.3 Q2	+2.0	-0.4	-2.5 Oct	— ***	—	5.9 Q3§	-15.9 Q4	-2.4	-2.7	na	14.3	8.89
Brazil	-5.9 Q4	-5.7	-3.6	-9.8 Feb	+9.4 Mar	+8.3	10.2 Feb§	-41.4 Mar	-1.9	-5.4	12.61	3.54	2.92
Chile	+1.3 Q4	+0.3	+3.4	+1.8 Feb	+4.5 Mar	+3.6	5.9 Feb§††	-4.8 Q4	-1.4	-1.6	4.38	669	609
Colombia	+3.3 Q4	+2.4	+3.7	+8.2 Feb	+8.0 Mar	+3.7	10.0 Feb§	-18.9 Q4	-5.1	-1.9	8.16	2,948	2,415
Mexico	+2.5 Q4	+2.2	+2.4	+2.6 Feb	+2.6 Mar	+3.0	4.2 Mar	-32.4 Q4	-2.8	-3.0	5.89	17.4	15.3
Venezuela	-8.8 Q4~	-8.4	-7.0	na	na	+181	6.0 Dec§	-17.8 Q3~	-1.4	-14.4	11.17	9.99	6.30
Egypt	+3.0 Q3	na	+4.0	-11.6 Feb	+9.0 Mar	+8.8	12.8 Q4§	-16.8 Q4	-2.0	-9.6	na	8.88	7.60
Israel	+2.7 Q4	+3.8	+3.7	-2.3 Feb	-0.7 Mar	+1.7	5.3 Mar	+13.8 Q4	+4.3	-2.5	1.83	3.76	3.90
Saudi Arabia	+3.4 2015	na	+2.8	na	+4.3 Mar	+3.8	5.7 2014	-53.5 Q4	+0.1	-8.0	na	3.75	3.75
South Africa	+0.6 Q4	+0.6	+0.7	-0.1 Feb	+6.3 Mar	+6.2	24.5 Q4§	-13.6 Q4	-4.1	-3.3	9.12	14.5	12.0

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. †New series. ~2014 **Year ending June. ††Latest 3 months. †††3-month moving average. §§5-year yield. ***Official number not yet proved to be reliable; The State Street PriceStats Inflation Index, March 34.88%; year ago 27.1% †††Dollar-denominated bonds.



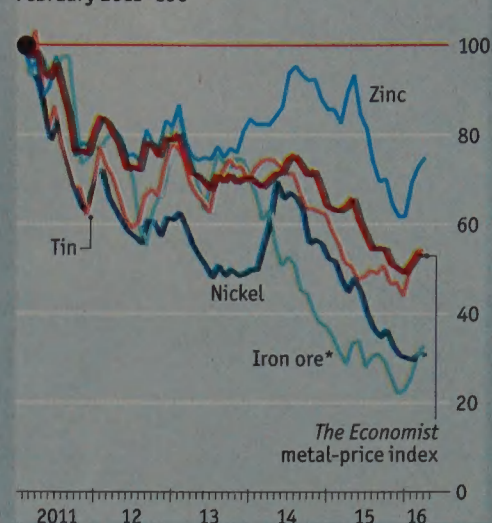
Markets

	Index Apr 27th	% change on		
		one week	Dec 31st 2015 in local currency	in \$ terms
United States (DJIA)	18,041.6	-0.3	+3.5	+3.5
China (SSEA)	3,091.0	-0.6	-16.6	-16.6
Japan (Nikkei 225)	17,290.5	+2.3	-9.2	-1.8
Britain (FTSE 100)	6,319.9	-1.4	+1.2	-0.1
Canada (S&P TSX)	13,887.7	-0.2	+6.7	+17.2
Euro area (FTSE Euro 100)	1,050.7	-0.7	-4.0	nil
Euro area (EURO STOXX 50)	3,130.4	-0.4	-4.2	-0.3
Austria (ATX)	2,330.0	-0.5	-2.8	+1.2
Belgium (Bel 20)	3,479.6	-0.6	-6.0	-2.1
France (CAC 40)	4,559.4	-0.7	-1.7	+2.4
Germany (DAX)*	10,299.8	-1.2	-4.1	-0.2
Greece (Athex Comp)	584.6	+0.4	-7.4	-3.6
Italy (FTSE/MIB)	18,750.6	+0.5	-12.5	-8.9
Netherlands (AEX)	448.4	-1.7	+1.5	+5.7
Spain (Madrid SE)	942.7	+2.2	-2.3	+1.7
Czech Republic (PX)	913.7	-0.4	-4.5	-0.6
Denmark (OMXCIB)	855.7	-0.6	-5.6	-1.5
Hungary (BUX)	26,988.8	-0.7	+12.8	+19.1
Norway (OSEAX)	662.7	+2.0	+2.1	+10.5
Poland (WIG)	47,513.9	-2.3	+2.3	+3.7
Russia (RTS, \$ terms)	927.1	-1.7	+10.4	+22.5
Sweden (OMXS30)	1,386.8	-2.3	-4.1	-0.1
Switzerland (SMI)	8,096.8	-1.1	-8.2	-5.5
Turkey (BIST)	85,374.2	-0.2	+19.0	+22.7
Australia (All Ord.)	5,250.9	-0.6	-1.8	+2.4
Hong Kong (Hang Seng)	21,361.6	+0.6	-2.5	-2.6
India (BSE)	26,064.1	+0.9	-0.2	-0.7
Indonesia (JSX)	4,845.7	-0.6	+5.5	+10.2
Malaysia (KLSE)	1,692.3	-1.0	nil	+9.7
Pakistan (KSE)	34,269.3	+1.9	+4.4	+4.4
Singapore (STI)	2,874.7	-2.6	-0.3	+4.7
South Korea (KOSPI)	2,015.4	+0.5	+2.8	+4.9
Taiwan (TWI)	8,563.1	+0.6	+2.7	+4.3
Thailand (SET)	1,411.8	-0.2	+9.6	+12.2
Argentina (MERV)	13,742.2	-1.0	+17.7	+6.9
Brazil (BVSP)	54,477.8	+1.6	+25.7	+40.4
Chile (IGPA)	19,557.9	nil	+7.7	+14.1
Colombia (IGBC)	10,086.7	-0.9	+18.0	+27.1
Mexico (IPC)	45,941.5	+0.6	+6.9	+6.0
Venezuela (IBC)	15,705.7	-2.5	+7.7	na
Egypt (Case 30)	7,863.6	+0.8	+12.2	-1.0
Israel (TA-100)	1,246.0	-3.7	-5.2	-1.9
Saudi Arabia (Tadawul)	6,820.3	+4.7	-1.3	-1.2
South Africa (JSE AS)	53,063.0	-1.4	+4.7	+11.6

Metal prices

The Economist's metals index has fallen by 46% from its peak in 2011, largely because of slowing demand in China. Supply disruptions caused occasional spikes: nickel prices rose in the first half of 2014 after Indonesia banned metal-ore exports and zinc prices jumped in 2015 after mine closures. Metals prices have rallied in the past few months, however, thanks to a weaker dollar and a credit surge in China. The price of iron ore, a steel-making ingredient, has jumped by 70% since December. The value of tin has increased because Indonesia, the world's second-biggest producer, introduced regulations to halt illegal trade that also curbed exports; recent flooding has also restricted access to mining areas.

February 2011=100



Sources: The Economist; Thomson Reuters

*Not in The Economist commodity-price index

Other markets

	Index Apr 27th	% change on		
		one week	Dec 31st 2015 in local currency	in \$ terms
United States (S&P 500)	2,095.2	-0.3	+2.5	+2.5
United States (NASComp)	4,863.1	-1.7	-2.9	-2.9
China (SSEB, \$ terms)	369.1	+0.1	-13.5	-13.4
Japan (Topix)	1,384.3	+1.4	-10.5	-3.3
Europe (FTSEurofirst 300)	1,370.7	-0.8	-4.6	-0.7
World, dev'd (MSCI)	1,685.9	-0.5	+1.4	+1.4
Emerging markets (MSCI)	843.2	-0.7	+6.2	+6.2
World, all (MSCI)	406.8	-0.6	+1.9	+1.9
World bonds (Citigroup)	927.9	-1.1	+6.7	+6.7
EMBI+ (JPMorgan)	756.9	-0.6	+7.5	+7.5
Hedge funds (HFRX)	1,157.8 [§]	-0.1	-1.4	-1.4
Volatility, US (VIX)	13.8	+13.3	+18.2 (levels)	
CDSs, Eur (iTRAXX) [†]	70.7	+0.8	-8.4	-4.6
CDSs, N Am (CDX) [†]	73.9	+1.3	-16.3	-16.3
Carbon trading (EU ETS) €	6.9	+37.8	-17.4	-14.0

Sources: Markit; Thomson Reuters. *Total return index. [†]Credit-default-swap spreads, basis points. [§]Apr 26th.Indicators for more countries and additional series, go to: Economist.com/indicatorsThe Economist commodity-price index
2005=100

	% change on			
	Apr 19th	Apr 26th*	one month	one year
Dollar Index				
All Items	134.5	137.1	+4.1	-4.2
Food	157.0	158.9	+3.6	+1.3
Industrials				
All	111.2	114.4	+4.8	-11.2
Nfa [†]	119.4	123.9	+6.3	+2.0
Metals	107.6	110.3	+4.1	-16.4
Sterling Index				
All items	169.9	170.9	+1.8	+0.6
Euro Index				
All items	147.0	150.7	+2.9	-7.0
Gold				
\$ per oz	1,254.2	1,241.6	+1.3	+2.4
West Texas Intermediate				
\$ per barrel	41.0	44.0	+14.9	-21.5

Sources: Bloomberg; CME Group; Cotlook; Darmann & Curl; FI; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Uner Barry; WSJ. *Provisional [†]Non-food agricultural.

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Music like a river

Prince Rogers Nelson, musician, died on April 21st, aged 57

SO SEXY, freedom. So sexy, he couldn't begin to explain it. Free to put on mascara, paint his lips, glue on long eyelashes to lower, flutter and seduce. Wear any colour, especially purple, but also electric blue, scarlet, glitter-silver and eye-aching lizard green. Strut in ruffles, squeeze in black leather, preen his naked midriff, shake his naked ass out of a yellow jumpsuit. Stack his heels, until his elfin figure became a giant. Dance with a white man, writhe with a black woman, kiss both, couple with either, be both races and sexes and neither in one cat-like, commanding frame. And, along the way, sell more than 100m records worldwide.

Free in his music, too. Brutal as a rapper, tender as a balladeer, swooping smoothly from bass to falsetto. Astounding on guitar, soaring off into a universe of riffs and improvisations. At the half-time concert at the Super Bowl at Miami in 2007, in torrential rain, he seemed unable to stop; and it was the same on piano, keyboards, percussion, drums. He played 27 instruments on his first album, "For You", in 1978, but felt he had the hang of thousands.

A thousand genres, too, from funk ("Kiss"), dance ("Uptown"), rock ("The Cross"), techno ("New World"), pop ("When Doves Cry"), obscenity ("Jack U Off"), beauty ("Nothing Compares 2 U")

and all the world in between. Half a dozen genres in the same song, sometimes. The rhythm & blues of Little Richard, the soul of Sly Stone, the clicks and whoops of Michael Jackson, James Brown, Miles Davis, Marvin Gaye, Duke Ellington, were mixed up, fused, made fantastic, and poured in astonishing profusion through his guitar. If he couldn't get the music out of his head, everyone's music as well as his, he couldn't function.

Most necessary of all was the freedom to reinvent who he was, throw the world off his track, and hide. In the mid-1980s he refused to give interviews, reducing any to the statement: "I'm looking 4 the ladder." When writing songs for other people he hid behind the names "Jamie Starr" and "Alexander Nevermind". In the wake of his album "Purple Rain" (1984), which sold more than 20m copies, became a film and won him an Academy Award for best score, he made a cult of that colour, like a cloak. The best ruse came in 1993 when he changed his name to an unpronounceable symbol that combined, gracefully, the male and female signs. It couldn't even be whispered; he drew it on the air. If people called him Prince, he didn't know who they were referring to. His name was right there, beautifully enciphered: all he was, and all his music was about.

There was also a sharp point behind it. He was fighting his recording company, Warner Bros, because they weren't releasing his albums fast enough to keep up with the music inside him. He was defying them because the name "Prince" was now their property, not his. Not even the rights to his own songs belonged to him. He wasn't going to be yet another black entertainer selling his soul, as Little Richard had, for a new car and a bucket of chicken. He'd got a pink Cadillac thanks to Warner Bros; that was enough. At the Brit Awards in 1995 his 13 words of thanks concluded: "In concert: Perfectly free. On record: Slave." "SLAVE" was written on his face too, in bold black pen. After 19 years he wrestled free, putting out an album called "Emancipation" and answering to Prince again. He made a stand for all black musicians, not just himself.

Uncatchable

Could anything pin him down? Not women: his two marriages were unhappy, and didn't last. Not time: his sense of it was limited to an indefinite future, his appearances onstage usually late. Not expectations, because he could cancel shows on a whim and then as suddenly put them on, impromptu, all-night and free. Not religion, because his fervour as a fresh-minted vegan, teetotal Jehovah's Witness came and went, together with the spirits who sometimes ordered him around.

Roots defined him slightly. He was born and schooled in Minnesota and stayed loyal to it, supporting the Timberwolves, sneaking into the Dakota Jazz Club in Minneapolis and building his studio complex at Paisley Park in Chanhassen. There, though, he was as elusive as ever, not to be caught on any recording device, including mobile phones. Fleeting impressions only, like vivid strobes. The internet bothered him, and he strove to ban his music from Spotify, iTunes and anywhere where he could not control it. For a while he tried to ban his showman's likeness, too.

Only one thing held him. He felt its tingling grip when he was seven, struggling to be good enough to be allowed to play his father's piano. It possessed him at Minneapolis Central High School: all those hours in the music room, his already-high-teased hair nodding over the keys, after his friends had gone home. It roared through his body on the stage like a river without end. At Paisley Park, if he was not at his purple grand piano, he would be recording; and though he produced 39 studio albums, four in his last 19 months alone, he still had shelves of recordings that were not quite ready, not sufficiently perfect, in his vault: enough material (some said) to make annual albums for the next hundred years.

To be bound to music was sexier even than freedom. So he let it fill both his days and his white, unsleeping nights. ■

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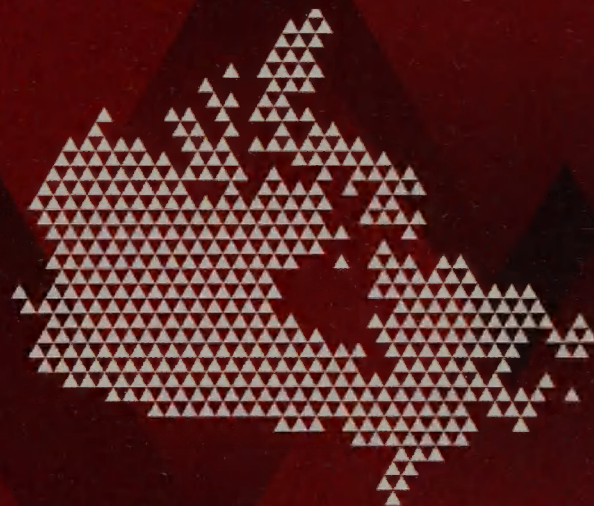
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